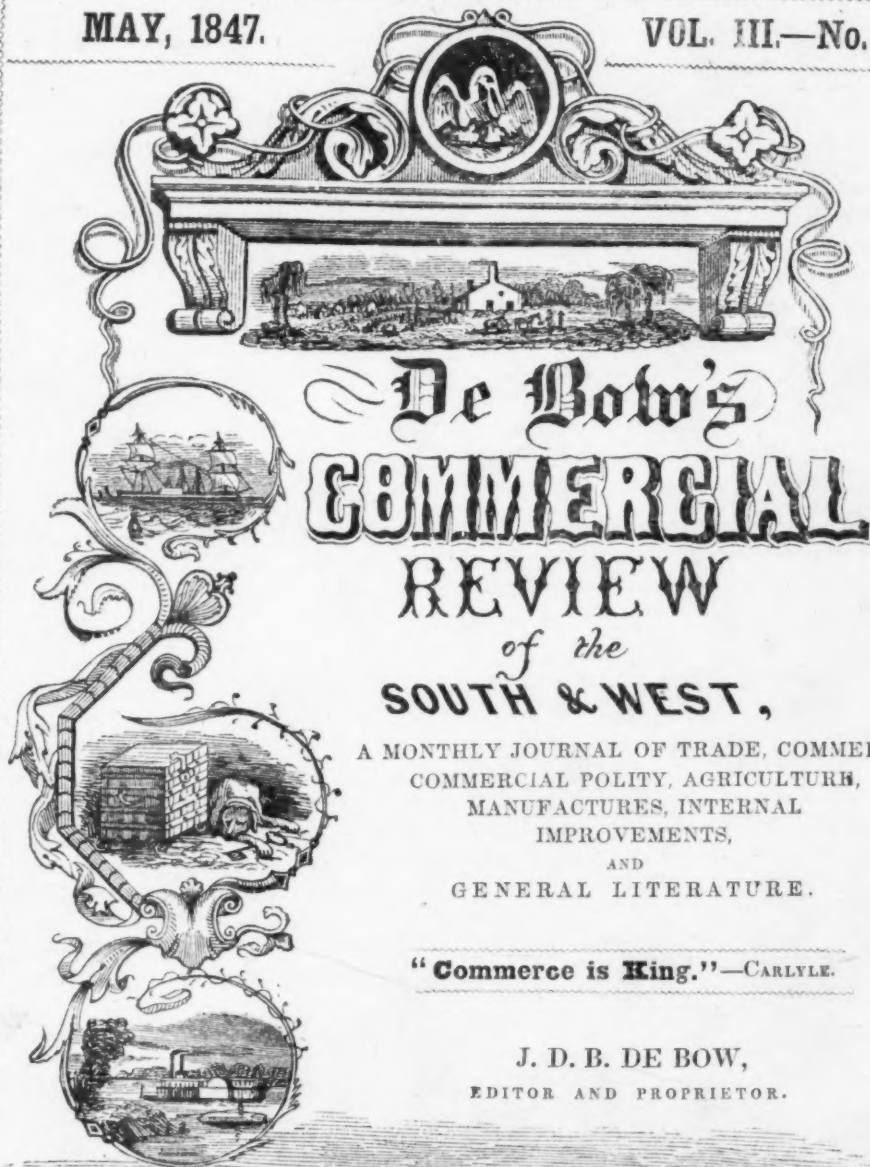


MAY, 1847.

VOL. III.—No. 5.



De Bow's
COMMERCIAL
REVIEW
of the
SOUTH & WEST,

A MONTHLY JOURNAL OF TRADE, COMMERCE,
COMMERCIAL POLITY, AGRICULTURE,
MANUFACTURES, INTERNAL
IMPROVEMENTS,
AND
GENERAL LITERATURE.

"Commerce is King."—CARLYLE.

J. D. B. DE BOW,
EDITOR AND PROPRIETOR.



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PRIZE ESSAYS FOR COMMERCIAL REVIEW.

In order to enhance the character of our Review, and to make it of the highest possible value to all the great practical interests of our country, we have concluded to hold out certain inducement to those who have the ability and willingness to supply us with material suitable for our purposes. We cannot, as a general thing, pay our contributors; indeed, none of them have required it; but in the present case, circumstances will be altered. The following PREMIUMS will be awarded by the Editor:

1. For the best Essay upon the *Agriculture of the South and West*, and the best mode of improving it,.....\$50
2. The best Essay upon the *Commercial Prospects of the South and West*,..... 50
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These Essays to be not more than one by the same writer; not to be less than twenty-five nor more than fifty pages each in length; and not to be of a political bias. They will be pronounced upon by the Editor. Author's name in every instance to be given. Every Essay presented, to be at the Editor's disposal for publication, if he deems proper.

TERMS COMMERCIAL REVIEW.

We invite contributions to the work and adequate patronage. Subscribers out of the city will remit to us by mail. Our Agents everywhere, we trust, will be prompt. We will furnish *five copies* of the Commercial Review for one year, to any one disposed to act as friendly agent, for *twenty dollars*. money remitted in advance. The subscription price is \$5, in advance.

Our subscribers will inform us should any number of the work not reach them.

ARTICLES SOLICITED.

The following is a list of subjects upon which we desire to publish sketches from time to time. Will our writers favor us? The prospect of American Hemp; the Copper and Lead resources of the Northwest; the Gold Mines of the South; United States Mint and Branches; the value, character and tests of soil in the South and West; The Pilot System of New York and New Orleans; changes in the Mississippi river; its banks and mouth; summer seats on the Gulf and Texas coasts; Internal Improvement Schemes at the South and West; Texas as a State; The Santa Fe and Mexican Trade; our position with Mexico; New Orleans in the past and in the future; Historical Sketches of the States; Sketches of Southern and Western Cities; Manufactures of the South and West; Sketches of the Biography of Eminent Practical Citizens; Essays on Commercial Law, decisions, etc.; Lafitte; Coins, Weights and Measures; the Polar Seas; Oregon Commerce, etc.

J. D. B. DE BOW, Editor and Proprietor Commercial Review,
22 Exchange Place, New Orleans.

NEW ORLEANS CHAMBER OF COMMERCE, }
New Orleans, May 4, 1846. }

Be it resolved, That this Chamber highly approves of the COMMERCIAL REVIEW, a periodical established in this city by J. D. B. De Bow, Esq., and recommends it to the patronage of the commercial community.

CHARLES BRIGGS, Secretary.

SAMUEL J. PETERS, President.

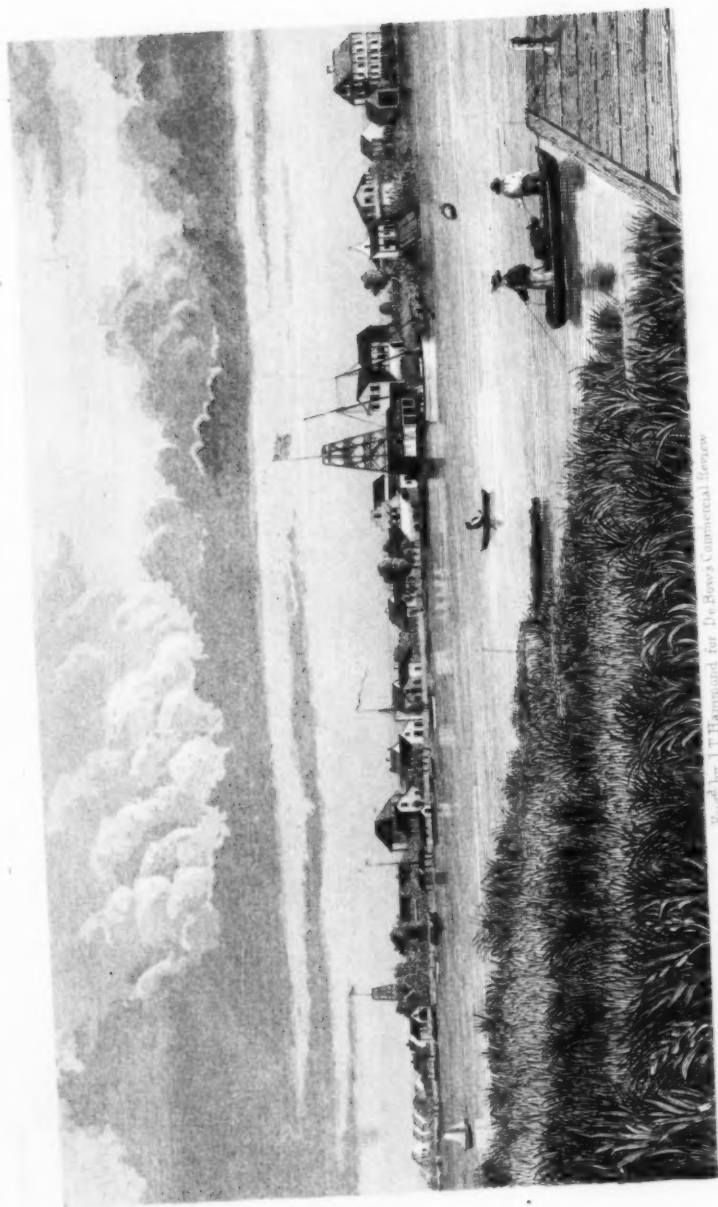
CHARLESTON CHAMBER OF COMMERCE, }
Charleston, Oct. 26th, 1846. }

On motion of Col. J. Gadsden,

Resolved, That the COMMERCIAL REVIEW, edited in New Orleans by our fellow-citizen, J. D. B. De Bow, Esq., is a work well calculated to exercise a most favorable influence on the Commercial interests of the South and West.

Resolved, That the zeal and talent with which it has been commenced, and the able articles which have appeared in its pages, (as foreshadowing on the future the promises of the past,) strongly recommend the Review to the patronage of the Southern community, and that the Chamber of Commerce of Charleston feel gratified at the opportunity of presenting to the public this testimonial in its favor.

WM. B. HERIOT, Secretary.



Engr'd by J. Hammond for De Bow's Commercial Review

18 4 11 1873

THE COMMERCIAL REVIEW

OF THE
SOUTH AND WEST.

ESTABLISHED JANUARY 1, 1846.

J. D. B. DE BOW, EDITOR AND PROPRIETOR.

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MAY, 1847.

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THE
COMMERCIAL REVIEW.

VOLUME III.]

MAY, 1847.

[NUMBER V.]

Art. I.—LIFE INSURANCE AT THE SOUTH.

NOTE BY THE EDITOR:—In the Commercial Review for July, 1846, we published an article upon Marine Insurance, promising to follow it up with several others upon Life Insurance, Fire Insurance, Mutual Insurance, etc. We wrote also to a number of gentlemen in the city at the head of the different offices, for information upon many points, and received in return many useful and interesting particulars, for which we beg leave now to return the most grateful acknowledgements. A press of various engagements has hitherto prevented us from continuing our original design, but this repents us less now, that we have engaged the able pen of Dr. Nott in an important department of it. There remains but little to be added by us.

The importance and the blessings of LIFE INSURANCE need no elaborate exhibition in an age so prudent, thoughtful, and intelligent as this. It may be regarded as one of the great charities of modern times, liable sometimes to be abused, but of most inestimable general results.

In the infancy of the system it had much to struggle against. The civil law maxim that a freeman's life was above all value, *liberum corpus æstimationem non recipit*, met and impeded it at every step. So strong was this prejudice, that the ordinance of Louis XIV forbids such insurance altogether, and was followed by many other ordinances of other countries, on the ground that they were gambling contracts of the most pernicious kind.*

The first insurance company established in France was in 1820, but neither there nor in other parts of the Continent, have such associations met with any considerable success, with perhaps the exception of Germany.

In England the Amicable Society established in 1706, led the way, but was not followed until 1762, when the Equitable Association was chartered. This last insured on an average for twenty years 5,500 lives annually, and after meeting all dividends, had a fund in 1840 of £11,000,000 sterling. The number of these incorporations in England now is very considerable.

In the United States the system is of recent date, the first societies having been

*Kent, whom we are following in the note, refers to the suggestion of Sergeant Marshall, that the prohibition of insurance on lives in France and Italy, proceeds from motives of policy, founded on the startling sense of the great infirmity of their public morals, which would expose to hazard lives so insured.

formed in Massachusetts in 1818, since which in all parts of the Union they have been growing up, and not a little interest is manifested in them everywhere, and in all classes of the community. What is said of the English companies ought to be kept constantly in mind: "The companies used formerly to select and take only lives of health and vigour, but now it is the practice to accept all lives proposed where no positive disease is manifested. So residence in Europe is universally admitted, and the companies are very much exposed to frauds, and the constant diminution of credit and confidence by the insurance of bad lives, and sinking the average duration of lives insured much below the average duration of human life.

The following are a few of the legal principles applicable to Life Insurance. There must be an interest in the life insured, as of a creditor. The interest of a woman in the life of her husband would not seem to be sufficient, except by special statute, as in the case of New York, unless she were entitled to an annuity during his life. American policies are restrictive in their nature, that is, they are void if the insured die upon the high seas; or, without consent of the Company, pass beyond the limits of the United States, and the British North American provinces, or south of Virginia and Kentucky, or enter the military or naval service, or die in a duel, by suicide,* or by the hand of justice. In all except the last three of these cases an extra premium will cover the risk.

THE protection afforded by Marine and Fire Insurance Companies is now so well established that no prudent man can be found to risk a ship at sea, or a house in town without a policy. We have in the United States not only become familiar with the doctrine of probabilities, on which such companies are organized, but our experience has been sufficiently long and large to establish fully their safety and utility. *Life Insurance*, on the contrary, with us is still in its infancy, and its importance not yet fully realized. Marine and fire insurance have done much towards giving a firm and steady march to commerce and all those transactions which bring prosperity to individuals and nations, and Life Insurance is but another strong link in the great chain.

There is no certainty in human events. The calculations of the merchant—the harvest of the planter—the fate of a ship at sea—the very existence of the world for another day, are all but probabilities, and we should not forget that nothing is more uncertain than human existence. "In life we are in the midst of death," and a day or an hour may paralyze the hand which feeds the helpless.

* It is impossible to forget the powerful picture drawn by Warren of the last hours of Gammon. He who in life had deceived every one, baffled even in death the keen scrutiny of the insurers. Whether this deception be possible, we leave to the author of the *Diary of a Physician*. We cannot suppose that any of the ten thousand readers of a master production would, particularly object to the insertion here of its best passage.

"DEAR SIR:—I have finally determined to make every sacrifice in order to extricate myself from my present embarrassments. You will therefore, as soon as you get this, please to sell out all my ——" here he laid down his pen; and Mrs. Brown presently announcing that everything was ready in his dressing room, he thanked her, and proceeded to shave and dress. He was not more than a quarter of an hour over his toilet. He had put on his usual evening dress, his blue body-coat, black trowsers, a plain shirt, and black stock, and a white waistcoat—scarcely whiter, however, than the face of him that wore it.

In a country like ours, where with untrammelled energies and eager grasp, we are pressing along the road which leads to fortune and greatness, we unfortunately sometimes travel too fast, and great commercial convulsions are inevitable consequences, which bring ruin on individuals the most prudent and cautious. Bankruptcy comes, and often under circumstances which leave little hope for the future. Take a person so situated, or one who is living on a small income, with the uncertainty of life hanging over him, and how much more cheerfully would he toil on, could he say, come what may my life is insured, and my wife and children are sure of something to save them from want.

The proportion of those in any community who have capital to invest, or who are able to buy an annuity is very small, but the proportion is large of those who could lay aside a few hundred dollars annually for life insurance. The small savings of an income might thus be laid out in a good mutual insurance company, where it would not only be safely, but profitably invested.

"I am going for the coach now, sir," said Mrs. Brown, knocking at the door.

"If you please," he replied briskly and cheerfully—and the instant that he had heard her close the outer door after her, he opened the secret spring drawer in his desk, and calmly took out a very small glass phial, with a glass stopper, over which was tied some bladder. His face was ghastly pale; his knees trembled; his hands were cold and damp as those of the dead. He took a strong peppermint lozenge from the mantelpiece, and chewed it, while he removed the stopper from the bottle, which contained about half a drachm of the most subtle and potent poison which has been discovered by man—one extinguishing life almost instantaneously, and leaving no trace of its presence except a slight odour, which he had taken the precaution of masking and overpowering with that of the peppermint. He returned to get his hat which was in his dressing room; he put it on—and in glancing at the glass, scarcely recognized the ghastly image it reflected. His object was to complete the deception he intended practising on the Insurance Company with whom he had effected a policy on his life for £2,000, and also to deceive every body into the notion of his having died suddenly, but naturally. Having stirred up the large red fire, and made a kind of hollow in it, he took out the stopper and dropped it with the bladder into the fire; took his pen in his right hand, with a fresh dip of ink in it; kneeled down with his feet on the fender; uttered aloud the word "*Emma*;" poured the whole of the deadly contents into his mouth, and succeeded in dropping the phial into the very heart of the fire, and the next instant dropped down on the hearth-rug, oblivious, insensible—dead. However, it might be that the instant after he had done this direful deed, he would have given the whole universe, had it been his, to have undone what he had done—he had succeeded in effecting his object.

Poor Mrs. Brown's horror on discovering her master stretched senseless on the floor may be imagined. Medical assistance was called in, "but the vital spark had fled." It was clearly either apoplexy, said the medical man, or an organic disease of the heart. Of this opinion were the coroner and his jury, without hesitation. He had evidently been seized while in the very act of writing to some broker. Gammon had no more stock of any sort, for all he had wrote that letter, than the cat which had witnessed his death. Mr. Hartley came, and produced the letter he had received, and spoke of the disappointment they had all felt on account of his non-arrival; the other letters, the appointments which he had made for the morrow; all these things were decisive; it was really scarcely a case requiring an inquest; but as they had been called, they returned a verdict of "Died by the visitation of God." He was buried a few days afterwards in the adjoining church-yard, (St. Andrew's,) where he lies mouldering away quietly enough, certainly; but as to anything further, let us not presume to speculate."

But while we are thus setting forth the advantages of life insurance, and placing it on the same platform with marine and fire insurance, we must not omit to warn against its dangers and deceptions. The great mass of those in the United States who insure their lives, (and thus become co-partners in the concern,) are utterly ignorant of the business they have embarked in; they know nothing of the history and principles of life insurance, the probabilities of life, the chances of profit or loss, responsibility often incurred, &c. They are attracted and guided solely by the one-sided representations of interested parties.

A new Mutual Insurance Company springs into existence, got up probably by a few men without capital in the hope of making a good speculation. Pamphlets are printed and circulated, newspaper puffs are put forth in every direction, showing the immense and increasing profits of the second, third, and fourth years, all of which is very plausible and imposing. The statements may be false, or the statements may be true, and the impostors may be as badly deceived as the public, for they are themselves too ignorant to know the dangers of the machine which they have put in motion. A company may work admirably for a few years, and eventually wind up disastrously. Several hundred, or several thousand badly selected lives may go on smoothly for several years; but many of these being insured for life, if they do not, (and they cannot if badly selected,) reach *the average duration of life*, on which life insurance is based, a heavy loss must follow.

Life insurance in Europe, like marine and fire insurance, is based on long experience and ample statistics. Tables of mortality there, have been kept for a long series of years, and the laws are fixed. In our country vital statistics are very imperfect, and our climate, habits, diseases, &c., are so different that the same rules are wholly inapplicable. Statistics must be accumulated through some three score and ten years before the laws of mortality here can be fairly made out, and our way clearly seen.

It is to be feared that Life Insurance Companies now, like banks a few years ago, are becoming affairs of speculation, and that some of them will terminate not less unfortunately. There is an over anxiety for patronage, and a carelessness in selecting risks, which is often apparent, and which should cause the prudent to pause and reflect.

The great success of the *Equitable* and some others of the long established English Companies, is held up as a proof of the advantages of mutual life insurance; but the story is but half told. Mr. Morgan,

than whom there is no higher authority, has shown that this great prosperity is attributable to circumstances which cannot occur again. The premiums charged some years ago by the Equitable, were nearly double what they now are; and besides this, during the first twenty-five years of the Company's existence, half the insurances were abandoned by the insurers, in many cases after they had paid for a considerable number of years. Yet we see trumpeted forth the success of the Equitable in order to tempt the unsuspecting.

But let it be steadily borne in mind, that not the chance of large profits, but *security* of the investment, is the first and paramount consideration. When an individual at the end of the year, pays to an insurance company the small savings of his hard and anxious toil, the question to be asked is not, is there a hope that I am to reap compound interest? but, are my wife and children or my creditors *sure* of the amount I have bargained for.

We have no space here for following out this point as well as many others, and our only hope is that we may do something towards stimulating investigation, and inducing persons to inquire into the condition and conduct of companies before trusting them too far. In order to give more weight to what I have said, I will here introduce a quotation or two from McCulloch's Commercial Dictionary, an authority which will not be called in question. If what he says of English companies be true, with how much more force will it apply to those of our country?

"Security, in Life Insurance, is the paramount consideration. It is, we believe, admitted on all hands, that the premiums were at one time too high; but we doubt whether the tendency at present be not to sink them too low. A great relaxation has taken place even in the most respectable offices, as to the selection of lives. And the advertisements daily appearing in the newspapers, and the practices known to be resorted to in different quarters to procure business, ought to make every prudent individual consider well what he is about before he decides upon the office with which he is to insure. Attractive statements, unless they emanate from individuals of unquestionable character and science, ought not to go for much. Life insurance is one of the most deceptive businesses; and offices may for a long time have all the appearance of prosperity, which are, notwithstanding, established on a very insecure foundation. If a man insure a house or a ship with a society or an individual of whose credit he gets doubtful, he will forthwith insure some where else. But life insurance is quite a different affair. The bargain is one that is not to be finally concluded for perhaps fifty years, and any inability on the part of an establishment in extensive business to make good its engagements, would be productive of a degree of misery not easy to be imagined."

Life Insurance Companies are divided into three classes. First, Joint Stock, who pay fixed sums upon the death of the individuals insuring with them, the profits going exclusively to the proprietors. Second, Mutual Insurance Companies, in which there is no proprietary

body distinct from the insured, who share amongst themselves the whole of the profits of the concern. Third, Mixed Companies, combining the two former plans in various degrees.

We will not detain the reader by comments on the comparative merits of these, but will content ourselves with another extract from McCulloch, which contains some excellent hints:

"The advantage to a person insuring in any one office as compared with another, must plainly depend on a comparison between the premiums demanded, the conditions of the policy, and above all, the *security* which it holds out. It may appear on a superficial view, as if the Mutual Insurance Companies would be, in all respects, the most eligible to deal with, inasmuch as they have no proprietors to draw away any share of the profits from the insured. It is doubtful, however, whether this advantage be not more than balanced by disadvantages incident to such establishments. Every one being a partner in the concern, has not only his own life insured, but is part insurer of the lives of all the other members; and may be, in this capacity, should the affairs of the society get into disorder, incur some very serious responsibilities. The management, too, of such societies, is very apt to get into the hands of a junto, and to be conducted without the greater number of those interested knowing any thing of the matter. There is also considerable difficulty in constituting such societies, in distinguishing clearly between the rights of old and new members; for supposing a society to be prosperous, it is but reasonable that those who have belonged to it while it has accumulated a large fund, should object to new entrants participating in this advantage. But the affairs of a society conducted in this way, or making distinctions in the rights of its members during a long series of years, could hardly fail of becoming at last exceedingly complicated, nor is it, indeed, at all improbable that the conflicting claims of the parties in some of the societies of this sort now in existence, may ultimately have to be adjusted in the courts of law, or by an Act of the Legislature."

All the Life Insurance Companies of the United States are north of the Potomac, as are nearly all the writers on vital statistics, and we are well satisfied that a want of local information and personal observation have led them into many grave errors respecting our condition at the south. From a half to one per cent. more is demanded on southern than on northern risks, and we propose now to inquire if there be sufficient reason, under all circumstances, for this distinction?

As our subject opens a wide field, which cannot be explored in the limits of a periodical, we shall confine ourselves to a brief inquiry into the health and longevity of our *southern seaports*, Charleston, Mobile, New Orleans, etc.

We have already said that vital statistics in the United States are yet in their infancy, and we think a capital error has been committed in basing the operations of Insurance Companies in this country, particularly the southwest, upon the experience of those of Europe. In Belgium, France, and England, for example, and we may add New England, population is dense, the means of subsistence and comforts of life difficult of attainment, marriages comparatively few, and the population must necessarily present a very different picture from that of our southwestern States. *There*, comparatively few children are born, and the average age of the living population must be higher than *here*. In

Europe, the old maids and bachelors serve to swell the average age of the population, while in the southwest, by marrying and propagating they would reduce it.

Suppose the whole population of Connecticut and Tennessee were struck dead at the same moment, the average age of all the dead in Connecticut might be forty, and that of Tennessee but twenty. But this would not prove that the longevity of the one is greater than the other, yet the *fact* is so construed and gravely set forth by statistical writers at the north.

Whether a population be a young or an old one, it should be remembered that disease and death are every where doing their work, and that the heaviest mortality every where is below the age of five years. So it is evident that the average duration of life, taken alone, proves nothing,—the lowest average may be in the healthiest country.

Our northern friends, though fully satisfied of the greater mortality in all the ages below three score and ten throughout the southwest, both town and country, than in New England, yet are obliged to admit the greater frequency here of instances of extreme longevity. This fact has much puzzled writers on vital statistics, but we think a satisfactory explanation may be given. May it not be accounted for by the well known fact that in very old people, in whom the *vis vitæ* becomes much exhausted, there remains little power to resist extreme cold. The difference between town and country in the south is not great, but at the north the centenarians double those of the country, because the inhabitants of cities are not so much exposed to extreme cold as those of the country; they are protected from the winds by the multitude of houses, and their dwellings are better built for excluding cold.

We will here introduce a table from Quetelet's "*Recherches sur la Reproduction et la Mortalité de l'homme aux différens ages, et sur la Population de la Belgique*," which he gives "in order that we may ascertain at what ages extreme heat or extreme cold is most to be feared. We add also a table from Mr. Shattuck's "*Report on the Census of Boston*, in which evidence is given of the influence of cold over old people.

	Deaths during the Months of		Deaths in July for 100 Deaths in Jan.	Deaths in Boston over 60.	
	Jan'y.	July.			
Still Born,	269	215	0,80	January,	1,09 per cent.
First month after birth,	3,321	1,719	0,52	February,	1,16
4 to 6 years,	878	600	0,59	March,	1,02
8 to 12 "	616	447	0,73	April,	1,02
12 to 16 "	409	420	1,05	May,	,80
16 to 20 "	502	545	1,09	June,	,69
20 to 25 "	361	796	0,93	July,	,77
25 to 30 "	793	724	0,92	August,	,97
40 to 45 "	818	613	0,75	September,	,75
62 to 65 "	968	525	0,54	October,	,94
79 to 81 "	658	332	0,51	November,	1,04
90 and upwards,	252	99	0,39	December,	1,05

This table certainly affords strong evidence of the unfavorable influence of cold on old age. The climate of our northern cities is remarkable not only for extreme cold, but extreme heat; the range of the thermometer in many of the northern portions of the United States is double what it is along the Gulf, where we are not only exempt from extreme cold, but extreme heat. As might reasonably be expected, the climate of our northern cities presses hard upon the aged, as we *know* it does upon childhood.

There is still another reason for the great proportion of centenarians seen in Charleston and New Orleans, which we think will be clearly established before we close. Besides being removed from the fatal influence of extreme cold, the old inhabitants who are thoroughly acclimated, are *exempt from the summer diseases of the climate, and have few of winter to contend with*. Life ceases because the machine is exhausted by the wear and tear of time.

It has been contended by most writers on vital statistics, that a large proportion of centenarians, so far from proving high longevity of a population, is evidence of the reverse; they are said to exist in the greatest proportion in the most sickly places.

This may be strictly true, but we are not prepared to accept the proposition as demonstrated, particularly when laid down as broadly as it usually is. In temperate malarious districts, where the general mortality is very great, it is possible some might not be susceptible to the influence of this atmospheric poison, and amongst the few survivors, a few centenarians would form a large relative proportion; but all this does not prove that every country is a sickly one, where many live to a hundred years. We are satisfied that there are many portions of the south which would show as low mortality for all ages below ninety, and less above that age, than any portion of the north, if the population could be confined to those localities for one hundred years. Charleston and New Orleans are often cited as instances of sickly places abounding in centenarians, but we shall give good reasons further on for the opinion, that these cities, to their native or acclimated inhabitants, are, perhaps, the healthiest in the United States.

But leaving out of the question cities, which we shall show have climates and diseases peculiar to themselves, and wholly different from the country which surround them, the climate of the gulf coast, including Florida, Alabama, Mississippi and Louisiana, is very imperfectly understood by persons at a distance. Although much has been written concerning the relation which exists between topography of southern countries and miasmatic fevers, all the laws and fine spun theories of book makers are put to flight by the facts every day witnessed in

this region. Heat, moisture, animal and vegetable matter are said to be the elements which produce the diseases of the south, and yet the testimony, in proof of the health of the banks of the lower portion of the Mississippi river, is too strong to be doubted,—not only the river itself but the numerous bayous which meander through Louisiana. Here is a perfectly flat alluvial country covering several hundred miles, interspersed with interminable lakes, lagunes and jungles, and still we are informed by Dr. Cartwright, one of the most acute observers of the day, that this country is exempt from miasmatic disorders, and is extremely healthy. His assertion has been confirmed to me by hundreds of witnesses, and we know from our own observation, that the population present a robust and healthy appearance. Why this is so, it is impossible to say; a country of this character on the Atlantic coast, would be almost uninhabitable by white population. The planters around Charleston desert many places of more favorable aspect, in summer, and retreat to the city for health. The coast of Mississippi, Alabama and Florida, presents in many respects a different topography, and yet is considered a healthy country. In point of temperature this is one of the most agreeable climates in the United States, and the coast is dotted along the whole gulf with delightful watering places and summer residences, to which the population resort for health and pleasure; and yet when you build a town, even on a sandy desert, as at Pensacola, yellow fever springs up and attacks strangers, while the natives are exempt. Whether it be an endemial position of bilious fever or not, yellow fever comes with concentrated population, usurps the field and reigns with undivided sway.

Though many other parts of the south and west present much interest, the main object of our present investigation is the climate of our southern seaports, and on the single point of *acclimation* turns the value of all our conclusions. On this point our northern writers are little informed, and although we can here but glance at it, we can easily, if need be, bring forward abundant evidence to satisfy any candid man of the truth of the positions we take.

It is now generally admitted that yellow and bilious fevers are distinct diseases, differing in their causes and nature. No one pretends that an attack of intermittent or bilious fever affords protection against yellow fever, or that yellow fever will protect against the former. No one denies that an individual may be attacked an indefinite number of times by intermittents or remittents, or that one attack even pre-disposes to others, and yet it is agreed on all hands that one attack of yellow fever affords almost perfect immunity against a second, provided the

subject confines himself to the yellow fever region, viz. the atlantic and gulf coast from Charleston southward. In truth, we may safely challenge a denial of the fact, that *one attack of yellow fever, or a long residence in a yellow fever city, affords a better protection against this disease, than does vaccination against small pox.* The citizens of Charleston, Savannah, Pensacola, Mobile, New Orleans, West India towns, etc., may exchange one city for another with impunity.

On the subject of acclimation we are fully borne out by Professors Harrison, of New Orleans, and Dickson, of Charleston,—two of the best authorities we have. The facts are so well known as to need no argument amongst medical observers.

Yellow fever is generated in crowded populations, perhaps exclusively; while bilious fever on the contrary, is the indigenious product of southern soils. In fact, there would seem to be something antagonistic in the causes of these diseases. Generally, along the southern seaboard, when the forest is first levelled, and a town commenced, intermittents and remittents spring up, and in some places of a malignant and fatal type. As the population increases the town spreads, and draining and paving are introduced, yellow fever, the mighty monarch of the south, who scorns the rude field and forest, plants his sceptre in the centre, and drives all other fevers to the outskirts. As the town grows, the domain of yellow fever spreads and the others recede. There is a middle ground where the two meet and struggle for supremacy. Here we see all imaginable grades, from the simple intermittent up to the most malignant yellow fever; but wherever they come in contact, intermittents and remittents are compelled to wear the livery of the master spirit. Here we see the groundwork of the erroneous conclusions of those authors who contend for the identity of intermittent, remittent and yellow fevers.

Though occasional cases of severe bilious fevers may occur in southern seaports, most of which are contracted out of town, *epidemics* of bilious or congestive fevers are wholly unknown. The highest number of deaths in Charleston during any one year for the last eighteen, from *all* fevers except yellow fever, is eighty-one, and the aggregate for this whole period is but six hundred and fifty-six,—a result which will much astonish those writers who are not familiar with southern statistics. These facts illustrate very clearly the peculiarity of *city climates* and diseases. If the population of Charleston, for example, which has varied little from thirty thousand for the last eighteen years, had been living in the country *around* the city, or scattered through the bilious fever region of the south, no one can estimate within one thousand of

the number of deaths which would have occurred during this long series of years.

The statistics of Charleston show a lower mortality amongst its *acclimated population* than any northern city, and the physicians of Mobile and New Orleans will give the same testimony in favor of these cities. Mobile and New Orleans, too, possess the great advantage over the former city, of being surrounded by healthy country. When these cities escape yellow fever, which attacks the unacclimated alone, they enjoy an exemption from all disease which is almost incredible.

Charleston is the only southern city in which bills of mortality have been faithfully kept for a sufficient length of time. We shall now proceed to give more in detail the statistics of this city and the deductions made from them. The bills of mortality of Charleston may be fully relied on, and are peculiarly valuable from the fact that the population has been little disturbed by immigration and emigration, and has not fluctuated much in amount.

The population of Charleston was as follows:

	<i>White.</i>	<i>Colored.</i>	<i>Total.</i>
1830,	12,928	17,361	30,289
1840,	13,030	16,231	29,261
	102 increase.	1,130 decrease.	1,028 decrease.

This table shows that the whole population in the period of ten years decreased 1,028, while the white population alone gained 102. We have good reason to believe from these and other facts, that from 1828 to 1846, the eighteen years embraced by our tables, the fluctuation was of very limited extent.

We have before us a "*Report of the Interments in the city of Charleston, with the name and number of each disease from 1828 to 1846, (eighteen years,) the prevailing diseases in each month, etc., thermometrical range, etc., from 1834 to 1846, (twelve years.)*" By JOHN L. DAWSON, M. D., City Register.

Below will be found an abstract of this Report, which we have made out with much care from the crude mass of material. This abstract contains a large portion of the *data* from which our conclusions are drawn, and will enable the reader to judge of their legitimacy.

The Report and abstract embrace all the deaths and causes of death in the city of Charleston for the eighteen years,—it is important to bear in mind, that we have, in the abstract, for the convenience of comparing different epochs, divided the whole term into three periods of six years each. We have also, for the purpose of facilitating comparison with other places, arranged our table on the plan of the distinguished statistician, Mr. Farr, of London,—the same plan has also been

adopted by Mr. Shattuck in his Report on the census of Boston, for 1845, a volume replete with instruction.

The causes of death as laid down in our table are divided into :—
First. Zimotic diseases. Second. Sporadic diseases. Third. Old age and external causes, such as violence, poisoning, drowning, etc.

We shall here, as on other occasions, extract freely from our article in the Charleston Medical Journal, as it contains statistics which are new to the readers of the Commercial Review, and necessary to the illustration of our subject.

Zimotic is a term used by Mr. Farr to designate all epidemic, endemic and contagious diseases. It is the property of Zimotic diseases to prevail more at one season than at another, or more in one locality than another, and to become epidemic, endemic, or contagious, under certain circumstances. This class, as it will be seen, includes all fevers arising from morbid poisons, as intermittents, remittents, yellow and typhus fevers; also small-pox, measles, scarlatina, influenza, etc., and the greater or less number of deaths from this class has been assumed as the best test of the salubrity of a climate.

Sporadic Diseases embrace all those which do not belong to the above class, as our table will show.

Old age and external causes cannot be called diseases, and should, therefore, particularly the latter, be separated from the other classes in estimating the influence of climate on health.

The following table, as we have stated, extends over eighteen years, which are divided into three periods of six years each. The aggregate number of deaths for each period is given from all causes, the number from each specified cause, and the per centage which each one bears to the whole.

TABLE I.

ABSTRACT OF THE CAUSES OF DEATH IN CHARLESTON, FROM 1828 TO 1845.

CAUSES OF DEATH.	No of DEATHS in the periods,			In each 100 there were in		
	1828 to 1833	1834 to 1839	1840 to 1845	1828 to 1833	1834 to 1839	1840 to 1845
All Causes,	4143	5229	3583			
Specified Causes,	3968	5080	3503			
1. Zimotic Diseases,	952	1900	765	23,99	37,40	21,83
SPORADIC DISEASES.						
2. Of Uncertain or General Seat,	506	548	426	12,75	10,78	12,16
3. Of the Nervous System,	593	605	606	14,94	11,90	17,29
4. Of the Organs of Respiration,	910	878	813	22,93	17,28	23,20
5. Organs of Circulation,	16	27	33	0,40	0,53	0,94
6. Organs of Digestion,	417	549	399	10,50	10,80	11,39
7. Urinary Organs,	6	2	5	0,15	0,05	0,14
8. Organs of Generation,	35	51	48	0,88	1,00	1,37
9. Organs of Locomotion,	21	14	14	0,56	0,27	0,39
10. Integumentary System,	7	9	7	0,17	0,17	0,19
11. Old Age,	311	299	226	7,83	5,88	6,45
12. Deaths from External causes,	194	198	161	4,88	3,89	4,59

CAUSES OF DEATH.	No of DEATHS in the periods,			In each 100 there were in		
	1828 to 1833	1834 to 1839	1840 to 1845	1828 to 1833	1834 to 1839	1840 to 1845
CLASS FIRST.						
Cholera,	14	19	4	,35	0,37	0,11
Cholera Infantum,	5	63	71	,12	1,23	2,02
Cholera, Asiatic,	0	392	0	,00	7,70	,00
Croup,	43	39	43	1,08	,76	1,22
Diarrhœa,	104	66	25	2,62	1,29	,71
Dysentery,	45	77	51	2,62	1,29	,71
Bowel Complaint,	83	23	5	2,09	,45	,14
Erysipelas,	4	2	2	,10	,03	,05
Fever,	43	110	44	1,08	2,16	1,23
" Inflammatory,	4	8	2	,10	,15	,05
" Intermittent,	3	5	24	,07	,09	,68
" Remittent,	93	144	50	2,34	2,83	1,42
" Country,	78	35	11	1,96	,68	,31
" Yellow,	58	562	26	1,46	11,06	,74
" Congestive,	0	4	12	,00	,07	,34
" Typhus,	49	79	93	1,23	1,55	2,65
Hooping Cough,	106	70	61	2,66	1,37	1,74
Influenza,	11	18	10	,27	,35	,28
Measles,	26	43	31	,65	,84	,88
Scarlatina and Sore Throat,	78	127	127	1,96	2,50	3,62
Small Pox,	63	0	53	1,58	,00	1,51
Syphilis,	1	0	2	,02	,00	,05
Thrush,	23	13	18	0,57	,25	,51
Parotitis,	0	1	0	,00	,01	,00
Dengue,	18	0	0	,45	,00	,00
CLASS SECOND.						
Abscess,	14	16	13	,85	,35	,37
Atrophy,	1	1	14	,02	,01	,39
Cancer,	26	15	30	,65	,29	,85
Debility,	128	125	70	3,22	2,45	1,90
Dropsy,	285	328	243	7,18	6,45	6,93
Gout,	4	1	1	,10	,01	,02
Hæmorrhage,	5	14	10	,12	,27	,28
Inflammation,	5	5	0	,12	,09	,00
Mortification,	10	4	3	,25	,07	,08
Scrofula,	12	20	12	,30	,39	,34
Tumor,	4	3	0	,10	,05	,00
Marasmus,	11	15	27	,27	,29	,77
Spine Diseases,	1	1	3	,02	,01	,08
CLASS THIRD.						
Apoplexy,	98	111	113	2,46	2,18	3,22
Cephalitis,	31	57	38	,78	1,12	1,08
Convulsions,	189	154	138	4,76	3,03	3,93
Delirium Tremens,	5	27	3	,12	,53	,08
Coup de Soleil,	3	1	1	,07	,01	,02
Epilepsy,	51	27	13	1,27	,53	,37
Hydrocephalus,	17	29	17	,42	,57	,48
Insanity,	17	16	18	,42	,35	,51
Paralysis,	57	60	54	1,43	1,18	1,54
Tetanus,	7	18	29	,17	,35	,82
Trismus Nascentium,	90	83	160	2,31	1,63	4,56
Cramp,	8	0	0	,20	,00	,00
Nervous Affections,	5	5	0	,12	,09	,00
Brain, Diseases of	15	17	22	,37	,33	,62
CLASS FOURTH.						
Asthma,	28	24	31	,70	,47	,88
Consumption,	665	565	561	16,75	11,12	16,01
Hydrothorax,	70	88	70	1,76	1,73	1,99

CAUSES OF DEATH.	No of DEATHS in the periods,			In each 100 there were in		
	1828 to 1833	1834 to 1839	1840 to 1845	1828 to 1833	1834 to 1839	1840 to 1845
Laryngitis,	2	0	2	,05	,00	,05
Bronchitis,	3	9	8	,07	,17	,22
Pleurisy,	33	23	17	,83	,45	,48
Pneumonia,	5	5	17	,12	,09	,48
Inflammation of Lungs,	12	29	21	,30	,57	,59
Hæmorrhage of Lungs,	1	3	0	,02	,05	,00
Lungs, Diseases of	10	6	8	,25	,12	,22
Catarrhal Fever and Catarrh,	81	126	78	2,04	2,48	2,22
CLASS FIFTH.						
Aneurism,	1	4	3	,02	,07	,08
Heart, Diseases of	15	23	30	,37	,45	,85
CLASS SIXTH.						
Colic,	32	28	14	,80	,55	,39
Dyspepsia,	3	3	5	,07	,05	,14
Enteritis,	60	99	90	1,51	1,94	2,56
Gastritis,						
Inflammation of Bowels,						
Hernia,	4	3	7	,10	,05	,09
Intussusceptions	1	1	0	,02	,02	,00
Peritonitis,	1	8	2	,02	,10	,05
Teething,	160	253	181	4,03	4,97	5,16
Worms and Worm Fever,	81	76	40	2,04	1,49	1,13
Liver, Diseases of	2	1	0	,05	,01	,00
Jaundice,	12	11	11	,30	,21	,31
Organs, Diseases of	2	4	10	,05	,07	,28
CLASS SEVENTH.						
Diabetes,	00	00	00	,00	,00	,00
Cystitis,	00	1	2	,00	,01	,05
Gravel,	5	1	2	,12	,01	,05
Nephritis,	1	0	1	,02	,00	,02
CLASS EIGHTH.						
Childbirth,	29	38	34			
Puerperal Fever,	2	5	2	,05	,09	,05
Organs, Diseases of	4	8	12	,10	,10	,34
CLASS NINTH.						
Rheumatism,	21	11	14	,52	,21	,39
Joints, diseases of	0	3	0	,00	,05	,00
CLASS TENTH.						
Fistula,	0	1	0	,00	,01	,00
Ulcer,	3	3	2	,07	,05	,05
Skin, Diseases of	4	5	5	,10	,09	,14
CLASS ELEVENTH.						
Old Age,	311	299	226	7,83	5,88	6,45
CLASS TWELFTH.						
Burns and Scalds,	8	3	5			
Casualties,	40	55	48			
Drinking Cold Water,	0	0	0			
Intemperance,	93	80	45			
Drowned,	26	36	43			
Executed,	0	1	2			
Fractures,	2	5	1			
Cold, Effects of	13	7	1			
Hydrophobia,	2	0	1			
Murdered,	0	0	1			
Poisoned,	2	1	2			
Suffocated,	0	4	2			
Suicide,	8	6	10			
CLASS THIRTEENTH.						
Causes not Specified,	175	149	90			

The reader cannot fail to be struck, on the first glance at this table, by the great disparity exhibited in the gross mortality of the three periods; and the fact is equally prominent that this disparity is attributable to the increase or decrease of *Zimotic* diseases. The mortality for each of the periods was as follows: 4143—5229—3583. From the *Zimotic* class the deaths were in each period, 952—1900—765, or for each 100 a percentage of 23.99—37.40—21.83. Here is strong evidence of the influence of endemics and epidemics over mortality; and the general fact has been taken as sufficient proof of the insalubrity of Charleston and other cities similarly situated as to climate. The average mortality for a series of years, has been estimated by Dr. Dunglison in his work on "*Human Health*," at one in thirty-six, which places that city below, and very far below, most of the northern cities of the United States.

The important question now comes up, viz.: who are they that die from these *Zimotic* diseases? Are they acclimated citizens of Charleston or are they not? And we beg the reader to bear in mind the general remarks which have been made on the subject of *acclimation*. The deaths in the second period of our table exceeded those of the third by 1135, or 148 per cent. By turning to class 1st in Table I., it will be seen that the deaths from yellow fever in three periods were 58—562—26, a very striking contrast certainly. Look at the heads fever, bilious fever, etc., and we find a greater mortality from these causes also in the second, than in either of the other periods; many of which deaths no doubt, were erroneously excluded from the head yellow fever.

The Table II., which we give below, besides some other interesting facts, reveals the following one, which will go far towards answering the question who are they that die from the endemic diseases of the climate? viz.: the deaths for the "*not natives*" were in each of the three periods, 764—1418—659, showing that the mortality amongst this class of population rises and falls as these causes act with greater or less force. If the table be taken in detail, year by year, this law is seen to be invariable. In the great epidemic of 1838, for example, there were 482 deaths amongst the *non-natives*, and so on with the other years. A portion of the deaths from yellow fever are amongst native children of the city, who, as we have stated, though far less liable to this disease than foreigners, are not considered as fully acclimated. It should be remembered also, that 392 of the deaths, or 8 per cent. of the second period, were from Asiatic cholera, which should be excluded from the calculation in estimating the influence of climate on the acclimated.

TABLE II.

Showing the gross Mortality for each year, and the ratio of the Whites, Blacks, Natives, Non-natives, Sexes, etc.

	WHITES.		COLORED.		TOTAL	TOTAL	GRAND	NOT	NATIVE.	DEATHS OF	DEATHS OF	
	Male.	Fem's.	Male.	Fem's.	WHITES	BLACKS.	TOTAL.	NATIVE.		WHITES.	BLACKS.	
1822	284	142	253	246	426	499	925	—	—	—	—	—
1823	217	132	213	250	349	463	812	185	629	—	—	—
1824	434	198	222	205	632	427	1059	382	677	—	—	—
1825	228	125	253	234	353	487	840	165	675	—	—	—
1826	203	108	217	236	311	453	764	—	—	—	—	—
1827	258	124	216	205	382	421	803	—	—	—	—	—
1828	232	126	222	213	358	435	793	168	625	One in 36,14	One in 39,91	—
1829	183	124	205	250	307	455	762	102	660	" 42,28	" 38,15	—
1830	209	120	199	235	329	434	763	143	620	" 39,45	" 40,00	—
1831	164	114	218	237	278	455	733	150	583	" 46,69	" 37,93	—
1832	142	108	161	149	250	310	560	96	464	" 51,91	" 55,35	—
1833	145	91	136	170	236	306	542	105	437	" 55,00	" 55,75	—
1834	192	116	158	226	308	384	692	166	526	" 42,14	" 44,16	—
1835	189	112	176	187	301	363	664	181	483	" 43,12	" 46,44	—
1836	196	123	443	410	319	853	1172	181	991	" 40,68	" 19,64	Asiatic Chol.
1837	172	102	180	176	274	356	630	144	486	" 47,37	" 46,79	—
1838	551	158	277	223	709	500	1209	482	727	" 18,30	" 33,00	yellow fever.
1839	307	127	195	227	434	422	856	264	592	" 29,93	" 39,00	" "
1840	184	73	177	171	257	348	605	179	426	" 50,70	" 46,64	" "
1841	120	80	187	173	200	360	560	94	456	" 65,15	" 44,80	" "
1842	171	88	165	170	259	335	594	113	481	" 50,30	" 47,85	" "
1843	131	63	237	246	214	483	697	89	608	" 60,88	" 32,98	" "
1844	109	79	173	192	188	365	553	108	445	" 69,30	" 43,36	" "
1845	119	127	153	171	246	324	570	76	494	" 52,96	" 48,54	" "

236 deaths fm. yellow fever.

63

26

32

49

26

392

354

134

23

2

1

48,54

Many of the causes of death, which by the too arbitrary arrangement of Mr. Farr, are thrown into class second, are but *sequelæ* of fevers, and in effect should really belong to the first or zymotic class. Debility, dropsy, diseases of the digestive organs, and old age, for example, caused, as our table proves, much the heaviest mortality in those years in which fevers were most prevalent, and consequently *pressed with greatest force on the unacclimated*. The mortality amongst the whites for the last six years averaged 1 in 58, and during these years there were few fevers, and consequently few of the *sequelæ* just mentioned.

It is well known that typhus, as well as other epidemic diseases of the North, are either wholly unknown, or press but lightly on the South. What are termed *malarial fevers* are looked upon as the great outlets of life *here*.

We have already stated that the aggregate number of deaths from all the fevers in Charleston, (excluding yellow fever,) for eighteen years, was but 656; and the aggregate from yellow fever during the same period was 646; and there can be little doubt that the acclimated population of Mobile and New Orleans are just as much favored.

There is every reason to believe that by proper police regulations, yellow fever might be almost entirely banished from our cities. In Charleston, there have been but two epidemics of this disease in the twenty-two years, and these have been attributed to the great fire of 1838, which destroyed a large portion of the city, and left the cellars, which became filled with water and rubbish, exposed to the Summer's sun. In that year, 354 died with the yellow fever, and in the next, 1839, 134 died. In these years, it should be remembered, a large number of unacclimated mechanics flocked in to re-build the town.

In Mobile, from 1829 to 1837, a period of eight years, during which time the streets were beautifully shelled and drained, there was no yellow fever. Since that time, shelling has been neglected, and the disease has occurred five times, and twice as very extensive epidemics.

No doubt much might be done towards improving the health of New Orleans. A very sensible and instructive paper on the subject, from the pen of Dr. John Harrison, may be seen in the New Orleans Medical Journal (last number.) *

* The reader will also refer with advantage to the article on Disease and Health in Southern Cities, by Dr. Hort, in the Commercial Review for March, 1847. Ed.

It is difficult to obtain well digested statistics of many of our northern cities. Those of Philadelphia some years back, have been made out by Dr. G. Emerson, so well known for his accuracy and ability on this and other subjects. On a comparison of the tables of Dr. Emerson with those of Charleston, it would appear that there are more deaths in Philadelphia from *all* fevers, including typhus and malarial, than from all fevers in Charleston, including yellow fever. From 1820 to 1830, in Philadelphia, the deaths from fevers were 13 and 5-10 per cent. on all the deaths. In Charleston for the last eighteen years, including two epidemics, the average mortality from fevers was 11 and 4-10; leaving out yellow fever, which attacks almost exclusively strangers, the mortality from other fevers will not be found to exceed seven per cent.

We must now bring to a close these too brief remarks on the zimotic class. Putting fevers aside, Charleston, as regards cholera, dysentery, diarrhæa, liver complaints, &c., as the table shows, will compare favorably with the northern towns; and when, in addition to these facts, we reflect on the comparative immunity which southern towns enjoy, from other scourges of the zimotic class, viz., small-pox, measles in several forms, scarletina, hooping-cough, and typhus, (from all of which I have not seen twenty deaths in my practice during the eleven years I have been in Mobile,) we may conclude that the climate of southern sea-ports is not so very bad after all has that been said against them.

The diseases of the organs of respiration form a very interesting point of comparison between the North and South. Though phthisis here is much more common than even our medical gentlemen are willing to admit, yet no one will contend that as many persons die South as North of diseases of the chest, including acute and chronic. We have no space here for following out this point, and must refer the reader for our facts to the January and March numbers of the Charleston Medical Journal before alluded to.

We give below another table, which will afford data for comparison with other cities on some important points. It embraces the last six years, the only years for which we have all these details. It includes blacks and whites, and it is to be regreted that the two castes cannot be separated at all ages, as we could thus be enabled to judge better of the effect of climate on each race.

TABLE III.

OF MORTALITY FOR CHARLESTON FROM 1840 TO 1846, SIX YEARS, SHOWING THE MORTALITY OF THE DIFFERENT MONTHS, AND THE AGES AT DEATH.

	Under 1 year.	1 to 5	5 to 10	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60
January,	35	33	9	11	23	23	28	18
February,	29	28	16	12	29	30	31	17
March,	37	28	12	14	28	32	27	22
April,	52	34	13	23	28	37	40	30
May,	67	40	17	33	33	22	30	18
June,	74	46	17	24	33	32	25	29
July,	86	53	16	24	46	32	27	19
August,	85	70	21	22	39	43	30	21
September,	57	44	11	24	62	40	35	32
October,	40	40	4	14	32	36	37	19
November,	53	34	3	20	29	20	27	16
December,	44	33	11	18	37	49	35	21
Total,	659	483	150	239	420	395	372	262
Average,	109,83	80,50	25,00	39,83	70,00	65,83	62,00	43,66
Per cent'g. 18,46	13,53	4,20	6,69	11,76	11,07	10,42	7,34	
31,99								
	60 to 70	70 to 80	80 to 90	90 to 100	100 to 110	110 to 120	Total.	Average.
January,	17	16	15	6	3	0	236	39,33
February,	15	17	7	2	0	0	233	38,83
March,	26	16	5	3	3	0	253	42,16
April,	24	22	9	4	1	1	318	53,00
May,	22	17	8	3	0	1	311	51,83
June,	22	11	10	3	0	0	326	54,33
July,	22	13	9	2	0	0	349	58,16
August,	18	10	6	7	0	1	373	62,16
September,	23	16	8	4	1	0	357	59,66
October,	17	13	12	6	1	0	271	45,16
November,	18	21	7	2	0	0	250	41,66
December,	7	13	16	4	3	0	292	48,66
	231	185	112	46	12	3	3569	594,83
Average,	38,50	30,83	18,66	7,66	2,00	,50		
Per cent'e.,	6,44	5,18	3,13	1,28	,33	,08		

We are forced for want of space to pass this table without comment, and to omit a comparison of North and South by the various methods which have been resorted to by statistical writers in order to determine the longevity of places. Judged by every test, the comparison is favorable to Charleston.

We will remark in passing the low degree of mortality amongst children in Charleston compared with northern cities. In Charleston, the mortality under five years is 31 per cent., while in Boston it is 46, and in other northern and European cities the per centage is still greater.

The average mortality for the last six years in Charleston for all ages is 1 in 51, including all classes. Blacks alone, 1 in 44; whites

alone, 1 in 58, a very remarkable result, certainly. This mortality is perhaps not an unfair test, as the population during the last six years, has been undisturbed by emigration and *acclimated* in a greater proportion than at any former period.

We do not wish to be considered an apologist of southern climates generally, on the contrary, no one regards the bilious fever regions of the South with more horror than we do. Though we are satisfied that the Gulf coast generally and many portions of the Atlantic States will compare favorably with our north-eastern States, we wish it borne in mind that we are now illustrating the climate of sea-ports alone.

When, then, we take into consideration the fact that yellow fever attacks only the *unacclimated*, and that bilious fevers do not affect to any extent the southern sea-ports; that these cities are comparatively exempt from many other zymotic diseases, as well as those arising from cold; that tables of mortality include all classes, and that it is only the better classes who apply for life insurance, we have strong reasons for concluding that the mortality in Charleston for the last six years, may be assumed as a safe measure for estimating the probabilities of life in that city, as well as in those of the Gulf.

We will here bring to a close our imperfect sketch, and must refer the reader who is curious in such matters, to more extended life statistics, which we have given in the January and March numbers, 1847, of the Southern Journal of Medicine, published in Charleston.

The Southern cities cannot expect, nor do they deserve justice on the subject of Life Insurance, until their vital statistics are properly kept. The subject is one of great importance and should be looked to.

Art. II.—MANUFACTURE OF SUGAR IN LOUISIANA.

SUGAR MAKING.—STRUCTURE OF MILLS.—SETTING KETTLES AND BOILERS.—ECONOMY OF FUEL.—CLARIFICATION.—EVAPORATION.—HISTORY OF IMPROVEMENTS.—FORMATION OF CARAMEL AND MOLASSES.—CLARIFYING MATERIALS.—CLEANING KETTLES AND STEAM-PIPES.—INTRODUCTION OF STEAM.—ITS ADVANTAGES.—OPEN PANS.—VACUUM PANS.—HEATERS.—ESCAPE STEAM.—FILTRATION OF SYRUPS.—IVORY-BLACK.—PNEUMATIC PANS.—FORMS.—LIQUORING.—CRYSTALIZATION, ETC., ETC.

In Louisiana the sugar cane is passed through the mills but once, and the amount of juice obtained is rarely more than sixty per cent. of

the weight of the cane. Therefore the bagass does not come out perfectly dry, and often contains half as much juice as has already been expressed, especially in horse mills, where the power is moderate and the rollers "set large." The greatest difficulty to overcome in a subsequent operation for the extraction of the remaining juice, is the absorbing power of the spongy texture of the pith, which enables it with exceeding facility to retake the juice expressed; and it has been proposed to charge it with steam at this point in order to supply the place of the more valuable sap, or by a second pressure then imposed, to wash out all the remaining saccharine of the cane, But this method, involving the increased expense of extended evaporation, greatly disproportionate to the result obtained, after repeated experiments performed on both large and small scales, has been abandoned, and attention more directly given to the operation of the first pressing in order to enhance its value and result.

In taking note, therefore, from the experience of others, we observe that those steam-mills of greatest power, moving at the least speed, yield the largest quantity of juice and the driest bagass. The cane held for a greater length of time between the rollers, allows the larger quantity of juice to fall to a distance beyond the danger of re-absorption, and therefore increases the amount yielded by the single compression. If, therefore, we would increase the amount of work from the mill, it would be improper to double the supply of cane, or the motive power, or even the rapidity of the revolution, but to avoid the too heavy feeding, extend the length of the rollers, and continue the equal and well-spread supply along the cane-carrier, if possible even reducing the speed. The average length of rollers might be therefore advantageously increased from four to five, or, perhaps, in extraordinary cases, to five and a half feet, and involving but slight difference of construction with such an improvement. With regard to their diameter, we are of opinion it should be diminished with the increased length rather than enlarged on the principle that substances intervening in the contact of large cylinders, offer resistance in proportion to the surface they cover; and in a mill of three rollers, if the the third were of reduced diameter, the nipping surface would be proportionably increased in power, and the result of the final compression greater. With such construction and adaptation, a fourth roller to produce the third action on the cane, might be found superfluous, and the advantage of using the least possible mechanical force to produce the most juice would be apparent in the reduced quantity of gum and extractive matter from the rind, which must always exude when under great pressure. And still

farther, another advantage from expressing the largest quantity of juice would be that the bagass is the more readily converted to a state fit for fuel, which becomes proportionably desirable as other fuel is scarce.

The value of all combustibles is a subject of increasing importance to every planter, as the supply of wood is diminished by his increased cultivation, and it may be worth a thought, if cutting canes too long and pressing them too closely may not be inexpedient, owing to the increased expense of fuel necessarily incurred to effect the evaporation of such juice thereby produced, surcharged with gum, and boiling with greater difficulty. Without any reliable means therefore of estimating the true value of juice, that is to say, its positive quantity of saccharine, it will be impossible to give rules to be depended upon as to quantities of fuel under any methods of application, which shall produce certain results of evaporation, or residue of sugar, to say nothing of the variable quality of plantation wood. We hear it frequently observed that it takes two or two and a half cords per hogshead, but that this is dry wood, drift, or refuse, gleaned from the clearings, is very rarely taken into account. It is therefore exceedingly difficult where coal is not the only fuel used, to obtain any reliable data for calculation of amount of caloric or steam, furnished by any given quantity of boiler, for purposes either of evaporation or steam production. Besides, this is not to be forgotten in the very many different methods of adapting combustion both to trains of kettles and to boilers. On some estates we find a train consuming three cords of bad wood per hogshead of sugar, and another half that amount of good wood is made to produce an equal result. The wet fuel to support its own combustion requires a large proportion of the heat it generates to set free the water it contains, and to prepare the repeated supplies to the fire for active combustion. The bad economy of using such wood is at once apparent, beyond the poor fire it produces, even to the extra cost of all the lost labor incurred in bringing such a collection to the sugar house; labor which would have been of positive value in the field, and brought an increase of crop.

As a branch of the subject, we would notice some of the many ways of setting the "trains" and boilers, of which there seems to be such endless variety, and none universally popular. In the East Indies we have seen a pit eight feet square dug in the ground to the depth of five feet, from this is extended a canal two feet wide and three feet deep, to any required length, the walls of which are lined with clay and the top arched with brick or stone encloses a succession of earthen pots, sometimes numbering as many as twenty. The pit is for feeding the

fire; the canal is the flue under the train, in length according to the number of evaporators to be used. The process of operation varies from our own only as the pots are small and moveable, and may be conveyed from place to place along the line of fire as is necessary to the perfection of their contents. In a long train, fuel is often supplied at some of these intervening openings when the pots are removed. At the exit opening of the flue there being no chimney, a valve is arranged acting as a damper, by which the amount of fire-draught is controlled, and retaining the hot air in the chamber of the flue when required. The second fire, when of charred wood, tends to the combustion of the smoke, and the same arrangement has been applied in this country for the same purpose under steam-generating boilers when of unusual length, but with very unsatisfactory results.

The "bascule pans" invented by M. Guillon, and considerably used in the French colonies, have the same advantages as the train of pots; their contents are small, (shallow,) speedily evaporated, and readily removed from the fire. The inconvenience of bailing is avoided, a decided advantage to the quality of sugar they produce, at the same time a considerable amount of work may be accomplished by a small number of hands. They are constructed with an ear on each side, into which a chain connects with a crane, the latter so placed as to serve two pans, and readily convey them between the coolers and the fire.

The common train of four or five kettles made in Louisiana of cast or wrought iron, is usually permanently set in masonry, having the fire applied under the smallest or finishing kettle, and a straight canal of about a foot deep under all, extending to the chimney. Various improvements on this simple construction have been made from time to time, such as hanging the kettles entirely by enlarged flanges, leaving the whole under surface exposed to the fire; building reflecting walls under each kettle, to force the fire to sweep entirely round; curving the bottom of the canal to correspond with the curves above, and produce reverberating surfaces towards the kettles, and in fine, leaving a very large space under the whole train, the opening of draught in which is taken from the lower side, at the chimney, and is supposed to take off only the lowest stratum of air, which of course possesses least heat. All these methods are analogous to the various ways in which the boilers for steam engines have been constructed and set, and deserve especial study where economy of fuel and amount of evaporation to be performed are such important points as in sugar making. Opinions are so various in regard to what may be indeed the best method, and practice so diverse, that any interested party in quest of information on the

subject, to serve his especial purpose, will do well to spend some time in examining neighboring "improvements," and he will observe that the plan adapted to one locality will not always succeed in others, and for which satisfactory reasons cannot always be given.

The additional supply of fresh air at the point of culmination of the flame under a boiler, has answered a good purpose, when the mouth of the draught has been large and tending downward, and where the fan has been applied to the fire, all other supply of air at the same opening being cut off. A damper on the chimney is indispensable. Baker's method of lining the flue under the boiler with cast iron plates of such curves as to produce reflection of the fire current toward the boiler, has been highly approved by some who have tried it. The "Argand furnace" of Williams, and the patent draught of Griffin, as they have been combined in some late constructions, possess decided merit, and is probably the best way of setting a stationary boiler without flues. The grate bars are placed very low, say three feet; the bridge-wall approaches within six inches of the boiler, and at the distance of four feet is another bridge-wall made of iron plate or pipe, perforated with many small holes, through which the fresh air is admitted to the fire as may be necessary. From this plate or pipe the flue is continued to the end of the boiler, and of a depth not less than four feet, forming a large reservoir of hot air, smoke, etc. If a cylinder boiler, the end wall is now carried up in the shape of an arch, and the opening made at its base communicating with the chimney; but for a boiler with flues the opening is made at the point next it, and of very reduced dimensions, often not exceeding an inch in depth and in length one-third of its circumference.

Upon the perfect arrangement of this end wall and adaptation of the draught there, entirely depend the use of intermediate air supply to any furnace, and it seems not too much to expect that this mode of setting might be well applied to a train of kettles constructed of iron as in use among us, when we have observed that similar principles are successful abroad as used with the pots.

Connected with the subject of fuel two important points must not be lost sight of, when comparing the relative advantages of locality before referred to, the position of cylinder-boilers, or construction of flue boilers for plantation use, and these are: fire-surface to generate steam, and the size of the reservoir for steam above the water. In the evaporation of juice we find that surface of fluid for the escape of steam, and atmospheric pressure, possess definite influence upon the progress of the work; and by analogy confirmed also by experience, we observe

that boilers kept *too* full of water, do not supply the same quantity of steam. The method of setting cylindrical boilers in pairs, making the fire under the first, and returning it to the chimney under the other, is but a modification of the arrangement of flues, the safety of which so far as maintaining a water level in both, will chiefly depend on having the steam and water communications sufficiently large. In conclusion, we do not think that planters living upon direct water communication with the upper country, place a sufficient value upon the coal which may be landed at their door cheaper than very many can afford to take hands from the field to provide wood; and moreover, the much greater quantity of heat that can be obtained with the same labor at the furnace. The isolated instances where bagass has as yet become the regular fuel, only three or four plantations in our vicinity, are no guides from which to form calculations as to how much dependence may be placed upon it, as sufficient fuel to take off the succeeding crop. Risk of fire and damage by water are too great. Our climate is not like that of the West Indies, sufficiently dry to cure the bagass with little or no labor, even if the cane itself were equally capable by the same freedom from gum to be converted into a good combustible.

We have before spoken of the quantity of juice yielded by the canes under the mill, and of its value in saccharine according to the compression the cane undergoes. The value of crystalizable sugar it contains is too generally reckoned by the instrument of Beaumé, miscalled a saccharometer, in the very application of which the principle that has governed its construction, specific gravity, is quite lost sight of. The incompatibility of such application as a test for saccharine, any one will call to mind when using the instrument in brine or in molasses, where it will ever stand higher than in a saturated solution of pure sugar. Canes cut high, or more closely expressed, yield a greater proportion of gum and mucilage, which giving additional consistence to the juice, tends to support at greater elevation any substance floating thereon. There can be no proof of saccharine equal to that of working by evaporation, and in this test, with any apparatus in use at present, it will be seen that the same difficulties before named as impediments in the use of the saccharometer, obtain, when we would produce evaporation, the escape of steam being impeded by a viscous fluid. We would therefore observe incidentally, that such may often be a cause of the failure of some experiments in this country, which have been quoted by writers as eminently successful elsewhere. The soil of Louisiana seems to furnish a larger quantity of gum to the cane than any other, where it is cultivated, and the increased difficulty with which clarifica-

ion is here performed compared with other places, proves a difference of constitution which involves another mode of treatment.

We find cane juice running from the mill charged with many impurities, and a variety of contrivances applied for the purpose of straining it into the reservoirs. Basketing, grass, or wire-cloth cannot be made fine enough to arrest the minute particles of soil washed from the stalk, and if they were detained by such a body as sponge, the surface would soon be covered, the passage of the juice impeded, and the necessity of frequent change of strainer increased; besides, that such substances holding the saccharine, promote fermentation. In the common operation of sugar-making, these particles of earth are not allowed sufficient time to precipitate themselves, and are consequently carried into the "grand" and onward, finally forming a part of the sugar itself, even the nuclei upon which the crystals make. Ebullition in the grand brings a portion of these impurities to the surface to mix with the froth and small particles of vegetable fibre, held together by the partially coagulated albumen of the juice, and they are then thrown off in such portions by skimming. But such clarification must necessarily be very imperfect. It has been frequently stated, and reputable authorities quoted to prove that cane-juice can be entirely resolved into sugar, less its constituent water, but simple observation will prove that sugar cannot be produced by any apparatus without producing molasses at the same time. That cane sugar is *not* "a primary secretion" of the plant, though the fact be supported by so eminent a chemist as M. Hervey, sustained by the opinion of Professor McCulloch, appears to be proved by the fact that such formation of saccharine is not found in any other instance, if here, in the whole vegetable kingdom, excluding the secretions of roots, and we trust that the farther reseaches of savans will expose such fallacies.* The quantity of molasses formed in the process of sugar-making, depends necessarily upon the quality of the cane known to be influenced by soil and season, perhaps quite as much as by the various methods of evaporation. There are certain components of the juice as natural to it as sugar, and which cannot be separated from the latter, without involving such portion as may exist in intimate combination with it. In this operation, then, as clarification progresses throughout, not by the surface only, certain portions will be precipitated, such as the unneutralized acids and free earths, together with the albuminous part not taken off by skimming, and unites with

* Professor Liebig has advanced in a late work, that the nodes or joints of the cane operate to correct the upward current of the sap.

the uncrystalizable sugar made uncrystalizable by oxygenation or carbonization; in other words too much boiling and immoderate firing. Molasses consists, then, of feculances, gummy, uncrystalizable sugar, and the sugar washed down from the mass set to drain, and will be more or less valuable according to circumstances. But that its formation is indispensable to the process of sugar-making, is beyond an argument. Regarding now the causes of its formation, that they may be obviated in a measure, we observe that the theory of crystalization refers to temperature as the governing principle together with atmospheric pressure, by which the amount of product is influenced. And it is a point still to be proved, whether a high or low temperature in boiling will produce a less wasting result, more perfect crystals, and less drainings. In a digester or steam-tight boiler, a solution of pure sugar has been evaporated at a temperature maintained of 269° , and the result of the re-crystalization was larger than of the converse experiment of boiling in vacuum.* We know by the result of every melting, (of even the purest sugar,) and its re-crystalization, that the product is successively less in quantity, and the formation of mother-water or uncrystalizable sugar in solution, is successively greater. This can be attributed only to the effect of heat, and we may conclude that it is the inevitable result of its application.

All sugars, all saccharine products, contain a greater or less amount of mother-water or molasses; the juices of the beet, the maple, the grape, honey, amidon made from starch, glycine, the product of oils boiled with the oxide of lead and water. It is enough that observation proves it to exist in every solution of sugar, and the results of experience are of more value than fanciful theories to convince that there can be made a sugar from the cane-juice without producing a certain and considerable quantity of molasses. Every particular of treatment to which cane-juice may be subjected in the process of being manufactured, will produce a definite result upon this residuum, and the power it may possess of re-crystalization upon repeated boiling, is to be influenced chiefly by the materials used in clarification.

Juice left to itself exposed to the open air, enters sooner or later, according to temperature, into a state of fermentation which progresses through a regular series of changes, all of which have birth in the original quantities of saccharine and gum contained. The first or viscous state, is indicated by a ropy appearance, and takes place at a temperature between 86° and 105° , and differs from the viscous change by the evolution of combustible gasses with carbonic acid, and

* Pelligot.

the more distinct separation of the gummy matter. After effervescence has ceased the juice is found to contain lactic acid and mannite, which together possess nearly the elements of grape sugar, and are to be regarded as strong impediments to crystalization. The production of this lactic acid is facilitated by certain exposure to air, as in the apparatus called a condenser, used by Derosne, where the juice is subjected to partial evaporation, by falling in drops over a succession of copper pipes heated by steam and placed in the open air. But sour juice, such as has once passed this primary change, is not affected by such action only as it becomes more oxygenated. The acetic acid it possesses is shown by the bright appearance it gives the copper. Succeeding this viscous fermentation comes the vinous, converting all remaining saccharine into alcohol, and for which in the West Indies all sweet waters, waste sugar skimmings and scrapings, are preserved to be converted into rum, and separated by distillation. It is said that twenty minutes after juice leaves the mill is, in some cases, ample time to produce fermentation to a perceptible degree, and it is therefore apparent that no time should be lost in the process of sugar-making at this stage. However, it is a common practice to have large juice-receivers for the purpose of collecting the sediment before the operation of clarifying commences, forgetting that these two processes might be made to progress to better advantage and with economy of time by combining them.

In the use of lime as a clarifier it is no mistake that it acts only to neutralize the acids of the juice, as far as has been yet developed, but beyond this it goes into mechanical suspension, excepting only the very small portion taken up by the water, viz., one part to 778 of water at temp. 60°, or 1 to 1270 at temp. of 212°.* And this excess applied, as well as the quantity, in solution intervening between these two given temperatures, is found to precipitate itself on the bottom of all reservoirs, and in the kettles to become by the aid of fire, a concrete, impeding the transmission of heat, and involving a cessation of the process in order to remove it. And in this removal by burning, the risk of cracking a kettle and thereby extending the delay of making the crop, by which large losses may be incurred, is very much dependent on the result of the process of clarification. Sugar is a solvent of lime, (*Ure*), and the combination is uncrystalizable, which therefore tends to form molasses, as does also the administration of earths, metallic salts, etc. It is well known from the experience of some among

* Dalton.

us, that the use of lime is not essential to the process of sugar making, for a very beautiful product is obtained without it, indeed of a superior quality, as lime always tends in however small the quantity given, to produce a red color on the crystals, and there remains not a doubt that it is generally used in excess.

The application of chalk to cane-juice to neutralize the free acids it contains, at the same time introduces calcareous and uncrystallizable salts, which also fix a portion of sugar in a liquid state from which it is impossible to free it. And again, the precipitation of the excess of chalk or salts forms a crust on the bottom of the kettles or on steam pipes if used, which is no easy matter to remove, to say nothing of the time lost at such occupation. As a chemical agent for this purpose both in kettles and pipes, where a day or two may be allowed, vinegar will be found active and readily obtainable from sour molasses or refuse sugar set aside for fermentation, dissolving this crust that it may be either scraped or washed out.

In the use of alum as a clarifier, a state of rest is essential, and its operation on cane juice is the same as on muddy water; the hydrate of alumina is formed; a gelatinous, semi-transparent substance of greater specific gravity than water, and therefore immediately falls, taking with it the earthy particles held in suspension.* This action, therefore, is entirely the result of gravity, for alum has but the slightest attraction for acids, and does not fully neutralize them.—(*Brander.*) Animal albumen, whether that contained in blood, white of eggs, or milk, is always alike, and operates in a mechanical manner. Being spread in a cold state throughout the juice or solution of sugar, when heat is applied it coagulates and comes from all parts to the surface, like a net rising from the bottom, and thus collects and presents at top a crust of cooked albumen combined with all the impurities before free in the fluid.

Other substances, more distinctly known as metallic salts, are also powerful purifiers, as they possess peculiar chemical affinities. With vegetable albumen, the red sulphate of iron, the chloride of zinc, and acetate of lead readily combine and precipitate. Many other substances have been used to produce the same result by the experimentalist, but the practical man would soon be disappointed with the economy of such agents, as they almost universally ruin the molasses, both for the re-boiling and the market.†

* Chaptal.

† The recipe for Howard's finings is

2½ lbs. alum,	} added to cream of lime for each 100 lbs. sugar.
24 lbs. water,	
3 oz. whiting,	

[*Silliman's Report to Congress, 1833.*]

After the application of any of these materials a state of rest is indispensable, which is by no means sufficiently appreciated in the present method of sugar making generally. This one point, in conjunction with the proper degree of temperature at which juice should be kept prior to evaporation, as before spoken of, will have a degree of influence upon the quality of the sugar and the facility with which all the subsequent evaporation can be carried on, especially as regards a vacuum pan, far beyond the present estimate of such persons who may not have observed it. That the juice boxes should be clarifiers, and not of small dimensions, will therefore appear plainly advantageous, and that the sum of their contents should be enough to allow each clarifier one or two hours rest before the juice need to be drawn off for evaporation. As to the time required for precipitation, it must be dependant somewhat upon the quality of the juice, but there are certain advantages in not extending it beyond half an hour. Cane juice once brought to within a degree of boiling and then left to rest, has not the same liability to fermentation, and will remain free from an increase of acid for an indefinite time. The affinity for oxygen is also diminished and the surface protected by the scum which at once forms upon it, thereby prevents the formation of red coloring matter so familiar to all, on the cut surface of an apple exposed to atmospheric action, and which is precisely analogous to the same chemical affinities existing in cane juice. By elevation of temperature above 115° (*Liebig*) all fermentation is prevented, and a clarifier of four hundred gallons once heated to boiling will maintain its warmth sufficiently long for common purposes. Moreover, after the addition of the clarifying materials the capacity for change is much diminished.

In ordinary kettles, when a portion of the liquid is converted into steam in contact with the bottom, it does not separate from the bottom immediately, but remains until a steam bubble of considerable size be formed, and in the meantime a part of the bottom defended by it from the contact of the liquid, becomes overheated, producing as consequences, 1st. the rapid destruction of the metal, and on that account an expense. 2d. Necessity for having originally much thicker and more costly plates of metal, which thickness is an additional impediment to the passage of heat, and therefore a proportionate waste of fuel; and lastly, when applied to vegetable extract, produces a carbonization and blackening of the overheated portions.

The primitive methods of sugar making, all by pots or kettles over the naked fires, are found productive of uncrystalizable sugar and caramel. The transmission of heat from fire to a liquid through an intervening solid, whether of metal or of earth, cannot be performed in an

equable and controllable manner, and this first led to the introduction of liquid media for heat, which after a few experiments were soon abandoned. Caramel, better known as burnt sugar, is formed on the sides of kettles at a temperature near 356° , (*Pelligot*,) and as it is well known that a common fire maintains a temperature of nearly 1000° , it will at once appear that to keep the surface of kettles below the point before named, can be no easy duty, and caramel will inevitably be formed to a greater or less extent. The application of the sand-bath in some of the operations of the chemist, led to the oil and mercurial baths for the evaporation of syrups. These denser liquids boil at temperatures far higher than water, and would by a natural law common to fluids in a free state, maintain an equal temperature throughout their volume, to an extent much above the one required for the evaporation of the rarer fluid; however, some facts, peculiarities in regard to their respective capacities for heat were lost sight of, but which came to be developed by experience, and caused the abandonment of the project.

Steam was next resorted to, and we see its first application in the train of MM. Fawret and Clark. Three double bottom kettles were placed immediately over a steam generating boiler, and the flue continued from this boiler passed under two large grands, in which clarification was performed, and the juice taken from them to the three first, in rotation, as in the common train. The steam, consequently, was admitted to the space between the bottoms of the kettles and supplied the place of fire to them. But these steam surfaces were of limited extent, and the work they performed depended on the tension of the vapour, which for many reasons was kept at a reduced temperature, compared with what in present use is found expedient. We next observe the introduction of a long copper pipe coiled into the kettle, through which steam was made to pass and transmit its heat to the syrup. This application was modified by Davis, of London, by placing the same coil of pipe in a cylindrical copper vessel whose bottom being flat equally facilitated the discharge and the cleansing, and it was finally perfected as we see it at the present day, by being taken from the train and fire, to be made an independent part of the apparatus. The project of setting the kettles in the top of a long boiler, to expose their under surfaces in the steam chamber below, has been proposed and experimented upon by a citizen of Louisiana, but in like manner as above, the steam surface proved to be too small, and the progress of evaporation slow. Miller's method is an improvement upon this; for the kettles over the boiler he substituted large pans with short copper pipes, set at such inclination as to return the steam condensed, by

its own gravity, to the boiler below, to be again changed into vapor. It is the loss of this vapor, containing a large amount of heat, which had made the use of steam pans unpopular, as they proved then to be but small economy of fuel, if of time, in sugar making. Taking in view this fact and another, the probable condensation of steam at a very short distance from its entrance into the pipe covered with a cold liquid, has led to many changes in the construction of steam pans, some of which have decided merit. The well known fact that water does not communicate the heat it holds with so great facility as steam, the proportion being one to five and a half, has made it an object to get rid of the water as fast as it forms, and supply its place with steam; therefore the largest amount of steam surface and the most free exit for hot water becomes at once the best recommendation for an evaporator. It has been advanced that steam condenses at a distance not exceeding ten feet in a pipe immersed even in a boiling liquid, and this has led to the introduction of short pipes, but the proposition wants proof.

Several inventions have been applied to detain the vapor where wanted in the evaporators, and release it only when condensed, and the one most common is constructed with a hollow globe of copper, made to float on the surface of water in a closed iron box to which the steam-pipe opens. As the water increases in quantity, it lifts the floating globe, which connected by a lever to a valve at the bottom of the box, opens it for the escape of the water. But even with the greatest care in the construction, the copper is found to have holes, if no larger than pores, which from time to time admit the steam to condense within and convert the "float" to a "sinker." We have seen lately another contrivance which, from having answered the desired purpose, deserves description, for with all steam apparatus it must be an essential point of construction to economize the vapor and then make use of the boiling water. The steam-pipe is made to terminate on one side the top of a cast iron cylinder of about one foot diameter, and three feet long, placed under the pan. Within is a copper bucket loaded at bottom to make it float erect in the condensed water, and leading through the top of the iron cylinder is a continuation of the waste-water pipe, which descends to within two inches of the bottom of the bucket. By the steam condensed running into the cylinder on the outside of the bucket, it is floated up until its bottom touching the end of the waste-water pipe, closes the opening, but the quantity of water increasing, overflows the bucket, which sinking proportionately, opens the pipe as needed, and allows the water to escape to the reservoir. An apparatus so simple and so little liable to derangement, besides that it requires no care, should be

better known and more used. Another advantage in the improved pans is, the pipes are so connected that by turning off one coupling, the whole may be raised as a door on a hinge, to facilitate the cleaning.

In the use of steam there are some phenomena worthy of especial notice. It was observed by Dalton, that to condense one pound of steam, five and a half pounds of water were required, and this water was raised by the steam, from a temperature of 60° up to 212° . It was also noticed that the time required to evaporate a given quantity of water by a certain continued supply of heat, was five and a half times as long as it took to raise the water from 60 to 212° . That the latent heat of steam increases with its rarity at low temperatures, and diminishes with its increasing density at high temperatures. From which facts we derive the points, that the economy in the use of steam for purposes of evaporation, lies in maintaining a current of vapor of low temperature without permitting the part condensed to be lost. For, as it takes but one part of fuel to generate vapor from boiling water, it takes five and a half parts to raise the water to boiling. High steam does not contain proportionate increase of sensible heat. As resistance to formation of steam exists in fluids more strongly from the pressure of the atmosphere than from the attraction of their atoms, on the removal of this pressure entirely, the fluid will boil, in vacuo, at about 140° less than in the open air. This fact exhibits the economy of the vacuum pan so far in the process as to the commencement of ebullition, but beyond that point the steam produced being more expanded and rare, has a greater latent heat; wherefore, unless the vapor taken off can be used as a fund of heat, there is no economy of fuel in the use of a vacuum more than in the open pan.—(*Arnott.*)

It was only when Watt had discovered by the experiments of Dr. Black, how much heat was lost when steam was lost, that he contrived the separate condenser for his steam engine, by which was at once saved three-fourths of the fuel formerly used.—(*Renwick.*) This has been partially applied in the "heaters" of the high pressure engines now so common throughout the country, and is an apt illustration of the economy of using the waste steam from the plantation engine for clarification; that the juice being then near the evaporating point requires but a small accession of heat to bring it to the boiling point. Further, the escape steam, if not so used, would be an entire loss. One or two pounds of detention in the outlet from the clarifiers, will equalize its pressure throughout, and secure an equable application of heat, while it will not materially impede the engine by back pressure. The great advantage that steam possesses as a medium of heat is that it is

so readily applied and governed, and that it very rarely attains the power of carbonization, so much the objection to the naked fire. The economy of its production is doubtful, but of maintaining it as a continuous rotary source of heat there remains not the least doubt, which the foregoing facts will not entirely remove. The facility with which it parts with its caloric, and the readiness with which the caloric can be applied, are illustrated by the fact, that it requires ten square feet of boiler fire-surface to supply four square feet of steam pipe surface in an open pan. The estimate of some experienced engineers is even a greater disproportion, such as ten to three, and it is always desirable to have an abundant supply, as the rapidity with which the evaporation can be performed is the great desideratum in the use of such apparatus.

The very many methods invented to supercede the inconveniences resulting from cooking sugar over the naked fire, exposing it to be burnt, and increasing the quantity of molasses formed, to say nothing of the risk of fire to the buildings in which the operations are carried on, are curious, if not instructive in the history of inventions, and a brief review of them may be interesting before we look into the apparatus in use at the present day; for it has been by successive steps that all improvements have been made, and from the position the manufacturer now occupies, his retrospective view will disclose to him the obstacles which others have encountered, and their expediences to overcome these will cease to be undervalued by him, as well as in his own manufacturing to teach the true operations of physical laws.

From the application of the oil bath before spoken of, we see the oil applied through a spiral tube, as a medium of heat to syrups, but this also was entirely abandoned for the use of steam. The capacity of oil for heat was proved to be far greater than that of the syrup, and the contrivance wasteful of fuel. M. Milles Berry was the first to introduce the use of short steam-pipes, and his invention is well known as the French steam-pan. Increase of steam surface in double bottom kettles, the upper one being deeply corrugated, had not proved so effective in result as was anticipated, and this parallel structure of pipes similar to a gridiron was introduced as bearing some resemblance and having double the amount of steam surface. But here, more than in almost any other structure of pipes, the expansion and contraction of the metal being hot or cold, rendered the possibility of keeping the innumerable joints tight almost out of the question. In this pan the condensed water escapes by interior tubes, which doubly increased the difficulty. Knight of Liverpool introduced the plan of admitting hot air through a coil of pipe pierced with numerous small holes, into the boiling syrup,

to carry off the vapor, while Vidder modified this invention by passing the hot air over the surface only, for the same purpose; and at a later day, to facilitate the formation of vapor in syrup, Milles Berry introduced several drums moving within each other in the pan. But all of these contrivances had the same evil, that of churning the syrups and facilitating their oxygenation, producing color and uncrystalizable sugar. When the superior advantages of the vacuum pan first became known, not only for the purpose of sugar-making or refining, but equally for the superior quality of the extracts made by it, numerous were the plans resorted to for producing this required vacuum with the greatest economy and facility. The increase in volume of a liquid converted into vapor, being nearly seventeen hundred times, the large air-pumps and rapid strokes required before condensation of the vapor was thought of, led to extended machinery and increased cost of labor.

The invention of the condensing cistern is therefore equally valuable as that of the vacuum pan of Howard. He, too, like Watt, was indebted for the hints derived from the experiments of co-laborers, for his fame and success. Before this was applied as it now exists, we find that vapor was taken off through long coils of pipe placed in running cold water just as stills are now constructed, and the pump producing the vacuum worked both vapor and water. This application of condensation was the source of another that in sugar-making is even now considered an improvement from its economy of heat. MM. Chaponais, d'Abonille, and Cellier Blumenthal, each substituted cane-juice for water in their condensers; their apparatus more recently improved by Dumont, Degrand, and lastly by Derosne, have given us the great condenser of the Derosne and Cail apparatus, which is a succession of parallel pipes of large diameter, placed one above the other, to the number of twenty or thirty, over which the juice is made to fall in drops from one pipe to another, and is thereby considerably evaporated, and proportionably increased in value. But these vacuums all involved the use of an air-pump, which requires a large amount of motive power, and we find this led to the invention of Roth; a reservoir for steam (at a little distance from the vacuum pan,) into which was poured through an extensive strainer, a large amount of cold water, which had for effect, after the expulsion of the air and supply of its place by vapor, to condense this vapor as rapidly as formed, and thereby maintain a partial vacuum. Davis applied revolving floats, like those of a rotary churn, for the more rapid production of steam in the pan; and another appliance was a drawing pan to take off the vapor. But the perfection

of the condensing cistern, as it stands in connection with the air-pump of the present day, has superceded all other contrivance. Now, there is required to be nearly water enough to condense all the vapor, and thereby lessen the amount of work for the pump, at the same time facilitate it and perfect its operations. Too often, however, it is complained of as an intricate piece of machinery and liable to disorder, whereas if properly made and attentively worked, there is as little liability to disappointment as from any other pump. The use of water in large quantities being therefore indispensably connected with a vacuum pan, limits its application to such localities as offer sufficient supply. To overcome this difficulty, and to make entirely available the whole amount of vapor discharged from a vacuum pan, and thereby secure even an extraordinary economy of fuel, has been left for the invention of M. Rillieux, and he has perfected the combination of the apparatus in a manner not only of admirable adaptation, but good taste in structure, and such as will commend itself to any intelligent person who will devote some little time to become familiar with its operation. The method of operation is as follows: The juice being clarified by the escape steam from the engine, is once filtered through animal coal, and then passed into the first vacuum pan, which is also supplied by escape steam as far as it will suffice, and if more is wanted a direct communication is opened with the boilers; here the juice is evaporated ten or twelve degrees more, and then being at about 23° to 28° of the saccharometer, is again filtered through the coal, from which it comes ready to be finished by boiling in the second and third vacuum pans, which are supplied with steam from the first by acting as condensers to it; the syrup in them being made to boil in a higher vacuum, and of course at a lower temperature. As the vapor of the first pan is drawn into the tubes of the second, so the vapor made in the second pan is drawn through the pipes of the third, and at last condensed only when there is no farther use for it. As an economical process of evaporation, this method must supercede all others on large estates; and the eminent advantages it possesses in connection with the process of sugar-making, need no recommendation to the practical man. Without the use of the coal-filters, the juice is entirely excluded from the air, and, not being exposed at any time to a heat above 210° , cannot produce either caramel or uncrystalizable sugar, therefore the quantity of molasses must necessarily be much less, and the color of the sugar also brighter. The use of animal coal is by no means an essential part of the apparatus of M. Rillieux, but it is so conveniently connected, and at so small a cost makes great improvement in the quality of the sugar, that it is universally adopted.

It has not been proved that this entire evaporation of cane juice in vacuum is detrimental to the quality of the product, but it is the common observation that sugar made in this way has no other flavor than "rock candy." When the loaves from the draining moulds are shaved down, they are as readily formed into stamped loaves by the usual process as in a refinery, and then if properly dried in the oven, are as durable in form. The vacuum pan used as a finisher or battery kettle, makes a grain adapted to the pneumatic pan or the forms, when it is desired to liquor the product in order to improve its quality, and for this reason as well as the much less quantity of molasses sugars produce when finished by it, recommends itself. For the production of a common brown quality it affords a superior grain, and among those who have ever used the vacuum pan we have not heard of one person willing to set it aside. M. Pelligot asserts that the formation of a large grain depends entirely on the vacuum during the concluding part of the process only, which we fully believe to be the case, and therefore where time is a greater object to the planter than fuel, as it may be where his crop is large and the season short or late, to take it in, we should advise the use of open pans as evaporators up to the last point, and then finish in a vacuum pan. The steam passing through the pipes of the open pans may be brought to the pipes of the vacuum pan, and the condensed water will partially serve the jacket. The advantages of the open pans are the extreme rapidity with which they effect the evaporation, and consequently the larger amount of work accomplished in a given time; the shortest time the juice remains exposed to the influence of heat always injurious; and under present adaptations an economy of fuel superceded by none but the apparatus before named. The medium of heat is conveniently under the control of the operator, it may be shut off and abandoned at any moment, and every boiling, if the pan is used as a finishing kettle, brought up equally to the same point, while the steam may at the same time be held back in reserve for subsequent use.

The use of escape steam for clarification is an important economy of heat, and has not been so much introduced as might have been expected of so simple an innovation. Besides the advantage of regulating the temperature applied, which it affords, another equally great is the state of entire rest which can be afterwards allowed, and that the operation of skimming can be dispensed with. The clarifiers in the apparatus both of Mr. Rillieux and of Derosne and Cail, are double, hemispherical kettles, having a cylindrical ring of sheet iron on top to increase their capacity. The steam is admitted to the space between

the kettles, and what is there condensed is collected in the common hot water reservoir from which the boiler is supplied. The connection of the bone-black filters is similar in both apparatus. From them the juice is also taken to the first vacuum pan, but in the Derosne and Cail arrangement, the vapor from this pan is condensed by the application of fresh juice as before described, then again filtered through the bone-black and finished in the second vacuum pan.

The phenomena connected with boiling in vacuo are too well known to demand description here. The operation of all pans however differently constructed, is conducted in the same manner to produce same results. The pressure of the atmosphere is in all indicated by the barometer, and the temperature also of the fluid by the thermometer. These two instruments are indispensable to the pan, and operate with beautiful regularity from the known laws that in proportion as atmospheric pressure is decreased, the syrup boils at a reduced degree of temperature, and therefore both instruments serve equally well to indicate the state of vacuum. The knowledge of the point at which to make the strike must be acquired by experience, and with a little attention, care and practice, may be learned in the course of the day, to adapt the work for the subsequent operations intended, whether the sugar is to be grained in coolers, moulds, or pneumatic pans. Heretofore it has been considered essential to have a "heater" attached to a vacuum pan, for as the syrup was discharged at a reduced temperature, near 120° , it was customary to heat to near 170° , before placing it in the forms. But this "heater," which was a double bottom kettle similar to the clarifiers, is now dispensed with, except for certain other purposes.

The operation of animal coal formed from bones by confined calcination, has been too often considered to be purely mechanical when used for filtration, as in large cisterns in refineries, and perhaps grows out of the fact, that when first introduced, the filters were filled with the ivory-black mixed with sand, and it is always a long time when false theories regarding new agents are advanced, before the more correct take full possession of the public mind. The action of coal on juice and syrups, except so far as straining them on the top of the filter goes, is purely chemical, and depends for its vivacity upon the purity of the surfaces, and for amount of action on the extension of surface, temperature, etc. Therefore the method adopted for, and perfection of the calcination, will determine the quality of the coal. Formerly it was thrown away when once used, but fermentation and re-burning revive its decoloring properties, and now it is suffered to rest for a time, and after-

wards re-burned in a rotary retort of very simple construction, involving but small cost to erect or to use. Thus, then, the great secret of the age in regard to sugar refining, from which large fortunes have heretofore been made, laid chiefly in the use of this simple material, and has come gradually to the knowledge of all who have sought the secret.

The use of coolers or forms, for the granulation of sugar, or even of pneumatic pans, have a relative value only as the molasses can be taken from the sugar by one or the other with greater or less facility. From the first, it has to be put in hogsheads to drain; in the second, the molasses drains into an earthen pot or trough leading to a reservoir below; and in the last, when the grain is perfectly formed, the air is withdrawn from under it, and the molasses runs down to fill the vacuum. But this contrivance has only lately been brought to successful operation, owing to certain physical obstructions dependant on temperature, moisture, etc.

"Claying of sugars" is performed by placing a small quantity of thin clay dough made with water, on the sugar forms. The clay gradually lets fall its water, which percolating downward dilutes a portion of the uncrystalizable residuum, that chiefly holds the coloring matter on the surface of the chrystals, and carries both with it to the reservoir below.

The process of "liquoring sugars" is equally simple; a saturated solution of white sugar being substituted for the clay paste. This operates to reduce the chrystals in a small degree, and assist the escape of the molasses. Molasses itself when of good quality can be used for the same purpose on goods of lower quality. When alcohol was first discovered to be the solvent for caramel, which is the principal coloring body, it was applied as a liquor, and successfully, if free from water, but the difficulty of so obtaining it, and its disadvantageous effect upon the molasses, together with the peculiar risks in using it, have caused it to be neglected, and now liquoring by syrups is the most common.

Temperature and a state of rest are the great agents in the process of chrystalization, and control in a measure the result of previous operation. Sugar-candy, an article of more extensive manufacture in the old countries of the east than with us, is dependent for its formation upon the fact that the syrup is left at a steady temperature of 140°, maintained by a stove for the space of three days. It is the only refined sugar of India, and is used after being pulverized as we use the loaf. In the island of Luconia, of which Manilla is the chief commercial port, all low qualities of sugars such as are taken from the cisterns, are drained first in baskets and afterwards in nets placed in the sun

until the loaves become so hard and compact that they are transported "in bulk," without package, and this is what is called jaggery, valued there at not more than two cents per pound, being in color nearly black with minute chrystals. The art of refining is not known in the east, and the only improved sugars we find are all clayed. Molasses is of but little value, and not manufactured.

We have now passed in brief review over the whole process of sugar making as now carried on with and without innovations upon the old system. These changes, perhaps too often called "improvements," claim a glance at least from all who are interested to keep pace with the advance which art is making in the branches of industry to which our respective fortunes in life have cast us. And in this respect we ought not to be dull of observation, seeing only but by study and by subsequent reflection comprehending. The "mysteries" of the steam engine and the vacuum pan, thrown over but simple physical action, by the limited conception of ordinary minds who give them no *thought*, are dispelled by contemplation. But for this pride of our ignorance we should despise the feeling that there is anything either in the simple or refined operations of nature too large for our comprehension, or too minute to be worthy our devoted attention. If we like not what we see others do; we have learned thereby to disapprove, and will afterwards be taught to avoid their errors, though our own powers of originality and invention may not be sufficient to suggest new methods of operation. The converse of this is also true, if their success is assured we may follow their example. Though the Spaniards once could not make the egg stand on its end, there have been none so ignorant since the days of Columbus.

Art. III.—COMMERCE OF SAVANNAH.

THE commerce of all States and cities may be generally traced to the same natural and never failing causes—local adaptation, enterprise, and industry, the sure agents of prosperous trade. Where these concomitants unite, and where this union is untrammelled by arbitrary enactments, on the one hand, and unfettered by the over-fostering care of a too wise government on the other, there commerce flourishes best, and wealth pours in with an open and a ready hand. An attentive observer of events within his own time, and a careful reader of the past, will not fail to have perceived that all attempts to restrain

commerce within certain and specific channels have been destructive of the very interests they have sought to cherish. All monopolies,—be they chartered associations, or the avaricious and over-reaching acts of an intermeddling government—have commonly terminated in the ruin of trade and the failure of its grasping participants. The policy of all protective and prohibitory laws in relation to trade, may very well be doubted. Wholesome and judicious enactments for the protection of the honest and the correction of the unscrupulous, are certainly desirable, and such come not within the pale of our general objections; nor are we disposed to condemn those special encouragements granted by State Legislatures to internal improvements, yet it were to be wished that the prohibitory should be severed from the permissive power, and free action allowed to all who may be able to array a sufficient amount of capital in the great work of general communion.

It is a curious and instructive subject for consideration, how far these general laws, when they have been found to combine in the case of one particular city, have operated to advance its prosperity, or how far neglected advantages, or the factitious recipes of political charlatans have reduced the once healthy body-commercial, to a state of nerveless inaction.

But our more immediate object in this article is to institute a brief inquiry into the present condition of the trade of the city of Savannah; to examine some of its peculiar advantages for a general and flourishing commerce, both foreign and domestic; to survey for a moment those rich portions of country that in all probability will ere long become tributary to her commercial greatness; also to cast a glance over those numerous avenues and intersections that already in their downward course to the ocean are seeking a resting place in Savannah.

This city may claim for itself that happy medium of climate—that *juste milieu* of temperature that quickens without enervating—that enjoys the crescive power of the tropical regions, without their noxious influences. Situated on the thirty-second parallel of north latitude, and eighty-one degrees west from Greenwich, it enjoys a winter climate which for softness and genial comfort, is unsurpassed if not unequalled. Its proximity to the Atlantic (distant but seventeen miles,) brings it within the reach of the refreshing sea-breezes, which temper the fervors of a summer solstice with a renovating coolness.

The Savannah river admits vessels drawing fourteen and a half feet of water to the wharves of the city; and it is but seldom now, in this age of improved models, that any freighting ship, at least of American

structure, is compelled from want of water to stop short of the city. When that is the case, however, (and this happens more frequently with foreign ships than our own,) Four Mile Point offers a safe and commodious anchorage, where vessels of almost any draught may load and unload. The water of the river at this point is still fresh and fit for all alimentary purposes. That destructive marine insect so fatal to vessels in salt and brackish water, the *sea-worm*, so called, is unknown in this river, and should it have gained a lodgement in the bottom of a vessel previous to her entrance into these waters, a very short time only is necessary for the fresh water to destroy them. At this point, also, ships take in their water at low tide for their voyage. The Savannah is navigable for the most part of the year for steamboats of moderate draught to Augusta, two hundred and forty miles above the city of Savannah.

The early history of Georgia shows that Savannah was then counted a place remarkable for its healthy location. Built upon a bluff of pure sand forty feet above the level of the river, it seemed for a series of years to have enjoyed a singular and happy immunity from all acute and fatal diseases. We read in the early annals of its settlement that it was resorted to by invalids and men of leisure during the hot summer months, both for health and pleasure.

In process of time, however, as population increased, and agriculture and the clearing of the lands in the neighborhood of the city progressed apace, mephitic and unhealthy influences were developed, and Savannah lost caste for a while, but only for a while, as a healthy city. When it is remembered that with the influx of foreign population, ill adapted from exotic constitutions and frequently from lax habits, to the warm climate of this parallel of latitude, came in also debilitating and often fatal diseases, it may well be questioned whether its ill health arose so much from local as from imported causes. Time and circumstances, however, have wrought another change, and what with the draining of contiguous lands and judicious municipal regulations, and the introduction of a better style of living both as to houses and food, and the greater adaptation of system to climate, and the gradual exhaustion of those deleterious influences brought into existence by the original turning up of the soil, exposure by the cutting down the sheltering forests from around the city; what with these causes, we say, and what with the perpetual though gradual, constant, though almost imperceptible rotation of all climates and temperatures, Savannah has again put forth her pretensions, and is now universally allowed to be as healthy a city as any in the United States.

The graver portion of our prescribed task remains to be considered, namely, the advantages that Savannah presents to the man of business, the man of unappropriated capital, seeking for its most profitable investment—the young man of enterprize, rich in stores of industry and knowledge of business, looking anxiously around him for a location in which he may bring forth his talents and his industry to best purpose, the sturdy mechanic with his ever ready hand, watching for a place where his labor may be remunerated with a comfortable subsistence; and we have not yet named the ship owner, we have reserved him until now purposely, for he is an important item in our account. The immense amount of produce that is booked in the page of human certainties to find an exit through Savannah to some market by water, either foreign or domestic, must with a moral certainty invite to this port the unemployed ships of the north, and that is saying a good deal; for the north have a greater propensity for building ships than we have for their employment. Our pine forests gradually disappear, they float away north, they are re-edified, they return to us in the form of stately ships. That gigantic tree that the persevering cutter has with so much labor “totted from its base,” and brought to our market—that mighty tree, “meet for the mast of some tall admiral,” has vanished, and where is it? It is in yonder floating structure; it has regained its original and dignified perpendicularity; it is the mast of a ship of one thousand tons; it has come to assist in transporting our produce to a foreign market. Thus our own children labor for us; thus our own products assist us to export our own products.

The position of Savannah in relation to other and surrounding states is a mark of nature's favor, and must in time place her high in the scale of commercial eminence. Florida on the south, with her shallow streams and incompetent harbors, cannot choose but seek, through her valuable inland passages from Savannah, a larger portion of her foreign trade. The railroads commencing at Savannah, and reaching on to the west for the space of three hundred and eighty-three miles, traversing regions of endless variety of products, will soon attain to the Coosa and Tennessee rivers, a distance of four hundred and thirty miles, uninterrupted except by a single portage of inconsiderable length, at Macon; and this link will doubtless be supplied ere long, and one vast chain stretch its formidable and fruitful length from the waters of the Tennessee to the waves of the Atlantic. The same point, viz., the Tennessee river, is reached by another element and other regions, untouched by the first line, find an easy and practicable channel for their trade by the means of the Savannah river to the city of Augusta, two

hundred and forty miles; steam again takes up the line of march from the latter point for three hundred miles, to the Tennessee. The citizens of that State, no longer idle spectators of these efforts of their brethren of Georgia, are rousing themselves to the work, and give good promise of taking up the line where Georgia has left it, and carrying it to their capital. Pursuing this route, we arrive at the banks of the Cumberland, and following its course we are conducted to the flourishing city of St. Louis, but twenty miles below the mouth of the Missouri, and thus obtain in the valley of the great west the prize for which the Atlantic States are contending with so much industry and perseverance. Returning once more to Savannah, we ascend the Central railroad throughout its whole length, one hundred and ninety miles, and passing up the Macon and Western road, a distance of forty miles, we come to Barnesville, a point whence the most important road in the southern country must inevitably branch, and thus conduct the great tide of southwestern travel to a point from which Savannah is the nearest Atlantic city,—this latter road reaching Columbus lays open to the same favored emporium the rich cotton regions of Alabama. That this splendid work, when completed in all its branches, will draw naturally into the same current a large portion of the trade of north Alabama, north Mississippi, east Tennessee and part of west Tennessee, can scarcely be doubted by him who has a map of the country before him and is capable of tracing the various routes and roads upon it, and observing their connection, and to that capacity adds the important acquisition of experience in the past operation of similar causes. What Savannah has so long been contented to forego for want of facilities of transportation, must inevitably be hers when the great line of road communication is completed. And so pressing and powerful is the impetus of a mighty and a growing trade in all these regions through which we have conducted the reader, that the result is inevitable; no possible state of things or chain of circumstances, however adverse, can delay it long.

Again, Savannah puts forth her feelers through the waters of the Ocmulgee to a point on that noble stream where terminates the already graded railroad from Albany, near the centre of the great cotton region of Georgia, a region based on the immense shell, lime and marl formation which runs through so great a portion of the southern States. Another route of equal importance, and promising equal if not greater advantages to Savannah, is one already much talked of and by many much desired, and one which at some period not very distant, must in the very nature of things, be constructed;—we mean the natural and direct continuation of the Central railroad from Macon to Columbus. It

is easy to foresee the consequences of such a route to Savannah, and not at all difficult to perceive the vast local interests that are naturally enlisted in favor of this route over all others, for a crossing of the State of Georgia. Such a route, when completed, can result in but one consequence, namely, that of rendering the whole country between the Ocmulgee, Flint and Chatahoochee rivers, the natural allies and tributaries to the trade of the Atlantic city of Georgia.

From this irregular and desultory sketch we perceive the vast prospective trade of Savannah; we view her hundred railroads, for we must call those roads hers that conduct a mighty stream of commerce to her bosom, we see her navigable and swift flowing rivers whose downward water bears the treasures of three fertile States to her wharves.

From the unfinished and somewhat undetermined condition of the various lines of internal improvement in the several States of which we have been speaking, it will readily be seen that no very exact calculation can be made as to the period when they shall, as one grand system united, though distinct, tending all to one point, though measurably unconscious of their destination, conspire to produce those commercial consequences to Savannah of which we have been speaking. It may also be imagined that the aberration of purpose consequent upon the opposing influence of so many sectional interests, may for a while protract, though it cannot long prevent that almost uniform concentration of trade to the one most expedient point, the city of Savannah. Individual influence, seconded by the magic of wealth and strong effort, may for awhile divert the course of trade into unnatural channels, but trade, like material bodies, is ruled by attractive laws, and the great magnet will ever be the one constant principle, self-interest; wherever this principle can be clearly discerned the tide of trade will follow.

If, as we have attempted to show, the natural and most expedient and the most easily reached market for the vast products of the south and west, shall be Savannah,—Savannah will be their destiny in spite of opposing interests, however cunningly and perseveringly arrayed these adverse interests may be. Savannah once the centre of all the commerce which her position and the tendency of circumstances will most certainly entitle her to, her export trade must, by a parity of reasoning, be proportionately increased, both domestic and foreign, and this increase of business products will naturally beget an uniform and progressive increase of capital and enterprise; when these two great partisans in the strife for wealth unite their forces the triumph is complete. Savannah exported during the commercial year of 1843, 285,754 bales of cotton; 25,032 tierces of rice; 7,500,000 feet of pitch pine

lumber; 5,175,000 cypress shingles; 66,000 oak staves. The direct foreign import for the same period amounted only to \$279,896, but as a great proportion of the articles of foreign import consumed in, and transmitted through Savannah, arrive coastwise from New York and other northern cities, it is difficult to form a calculation from any very certain data what is the actual value of the aggregate, direct and indirect foreign imports of Savannah, blended as the latter are with the coastwise imports during the period of which we have been speaking, viz., 1843. The registered, licensed and enrolled tonnage of the port of Savannah amounted to 17,920 tons, but the total amount of all tonnage frequenting our port cannot be readily arrived at, since most of the vessels engaged in the coasting trade sail under licenses which exempt them from entry or clearance at the Custom House, except when they have foreign goods on board. Leaving the amount of tonnage thus arriving and departing without official notice to conjecture, we will proceed to refer to some data concerning recorded arrivals and clearances at the Custom House, from which will be seen, by comparison, what the whole might probably have been. From the 1st of October, 1844, to the same month in 1846, there entered coastwise the port of Savannah 719 vessels, comprising an aggregate tonnage of 196,791 tons, and during the same period from foreign ports, 26,612 tons of American shipping, and 78,476 tons of foreign, by which enumeration a curious fact is brought to light, namely, that the foreign carriers of our own products outnumbered the native, in a ratio of three to one! The total amount of tonnage of all descriptions entered at the Custom House of Savannah during the two years last named was 105,089, and the total amount cleared for the same period was 133,915; the difference between these two sums arising in part from vessels remaining over in port at the commencement of the year with which we begin our calculation, and in part from vessels arriving coastwise with license, taking foreign freights and exchanging their licenses for registers, and thereby in clearing obtaining a record on the Custom House books. The value of foreign goods passing through the same channel, and for the same period, subject to duty, amounted to \$310,255 39, while those not liable to duty, though of foreign import, amounted to only \$19,915 21; of specie for the same period, there was an import of \$65,423 86, making a grand total of foreign imports into the city of Savannah for the two years ending on the 1st of October, 1846, of \$595,594 50, while the value of domestic produce exported to foreign places arrived at the important sum of \$7,353,186 86. If we add to this latter sum the value of the coastwise exports for the same period, which could not have been a less amount, we have nearly fifteen millions of exports for the two years.

It must be kept in mind that during these two years Savannah had scarcely began to feel the effect of the internal facilities of transport. To what a point then, may we not reasonably expect her trade to arrive, when the numerous avenues completed in progress, and contemplated, shall be directed to one common centre, and Savannah be the grand depot of all. The Central railroad is destined *cæteris paribus*, to accomplish for Savannah what the Erie canal has done for New York, accomplishing the prediction of General Bernard, who, after carefully examining and weighing all the local advantages of this city, exclaimed "Savannah is destined to be the New York of the South." If heedful exertion and liberal means are put forth these things must eventually come to pass. We had almost said that such a result would ensue from unaided natural causes, exertion and enterprise sleeping the meanwhile, but this is saying too much and hoping too much; we only mean to imply by a strong figure, that the descending stream of trade only wants direction. It is but required of the merchants and men of capital to use the ample powers that circumstances have placed in their hands to give this direction. Savannah must not, however, imitate the rustic in the fable who waited on the banks of the river for the waters to flow by, but rather dash on with bold step, and force the stream at every practicable ford, and where there is no ford, to call on their ingenuity and enterprise to make one. In proportion to the facilities of transport will be the augmentation of products; this we venture to assume as an incontrovertible position, and every new water communication, and every new railroad opened through the State will cause thousands of hitherto uncultivated acres to start into life and fruitfulness.

The present year, although the first since the railroad has penetrated to the Cherokee country, affords striking proof of the truth of our theory as exemplified in the increased value of the commerce of Savannah. The exports of the month of February, 1847, exceed those of the same month last year, by \$839,477 75. In January of the present year our exports have amounted to \$1,038,954 41, while the same month in 1846 exhibited but \$262,124 52, an increase of \$776,829 89 in the one month of January, and a total increase in the two first months of 1847 of \$1,616,307 14; this enumeration is exclusive of the coasting trade. We do not wish to conceal the fact, nor would it help us to do so, that a portion of this increase has arisen from the greater value of our staple products, the cotton and rice crops of Georgia the past year over that of the preceding. While we are speaking of this grand staple, it occurs to us to advert to the vast prospective increase in the cultivation of cotton in Georgia, as road after road pierces the numerous rich and

fertile counties through which they must necessarily pass. The railroad is at once the plough and the seed, the planter and the carrier; wherever its course leads through the hitherto trackless regions of our State, energy is awakened, industry stimulated and enterprise excited in the highest degree. As our railroads have but just reached the great grain country of the State, we cannot expect that important article of trade to have been much augmented in quantity as yet, but the lapse of another year will show in all probability, a result that will carry with it the conclusion that Georgia will ere long number grain and flour among her most important exports. Cass county and the regions adjacent, are fertile and immediately contiguous to the western and Atlantic railroad, the natural feeder of the Central railroad. They will, doubtless, become the granary of lower Georgia, and after supplying all the domestic wants of the State, will ship their surplus to foreign countries, through Savannah. Those counties through which the State road runs are subject to peculiar temptations, two markets are placed before them of nearly the same facility of access. On reaching Atlanta, two roads of nearly equal length invite their attention, and await their decision. Shall they pursue the path to Augusta and thence by the Hamburg road to Charleston, or is their patriotism enough to turn the almost equal scale? No such thing; patriotism has nothing to do with such matters. Trade is governed by its own laws, and so is the *amor patriæ* of the present day. It follows, then, that the owner of the produce, who probably accompanies it to market, will be swayed by motives of interest; if he finds the facilities offered on the Western and Macon and the Central roads superior to those of the Georgia and Hamburg roads, Savannah will enjoy the fruit of his labors, all other things being equal. It must be the study of the presiding powers of the Central and Western roads to cultivate this result by good smooth tracks, plenty of cars of burden, and moderate rates of freight,—the latter *should* be so modified, and doubtless will be so ere long, that a barrel of flour can reach the Savannah market at an expense of twenty-five per cent. less than it would pay to Charleston.

The lumber business of Savannah has hitherto been an almost unnoticed item in the history of its exports, but is now too well grown to be kept out of sight. It has become a trade of very considerable importance, and employs constantly more than two hundred vessels of all sizes; Europe, the western islands of the Atlantic, the West Indies, all of the middle and eastern States of the Union are its customers. Nay, even the celestial empire itself has been found to be a market for it.

The yellow pine of Georgia, the *pinus australis* of Michaud, is con-

fessedly the most valuable, because the most durable and the most beautiful of all the resinous woods for the purposes of structure. It differs from the pine of the same name of North and South Carolina in many of its features; the most striking one is its grain, for so the various laminæ or concentric circles that compose the tree are called. The grain of the Georgia pine is much closer and finer than that of either of the other States, and the resinous matter with which all pines abound is more firmly incorporated with the wood, and less easily extracted by water or climate. So long as this vital principle of the wood is retained, the wood itself, if free from sap, is incorruptible; but when from conspiring elementary causes, this natural aliment is parted with, (and this is soonest the case where the grain is coarse and the laminæ far asunder,) a space is left open to the alternations of air and moisture, and these are the sure harbingers of decay. It has been objected by some that this theory is not sustained in the case of pine continually covered with water, being known to remain sound for more than half a century. We answer that this case is not in the nature of an objection to the theory, inasmuch as it is not embraced in the position laid down; it is the alternations of air and moisture, of wet and dry, that cause the pine, and we believe most other woods of open texture, to decay. Neither is another instance where pine is kept entirely dry, and so continues sound for as long a period as that continually covered with water, any more at variance with our theory. The durability of Georgia pine in either of these predicaments is greater than that of most known woods. It enters largely, as before remarked, into the construction of vessels, and is used by northern ship-builders in many parts of their business. It composes the flat of the bottom, the wales, water-ways, plank sheers, beams, and indeed almost the entire between deck work of the finest ships of our country. It is also used for keels, lower masts, top-masts, bowsprits, and for the interior work of the lower hold of ships, such as clamps, ceiling, and thick streaks, it is much preferred. The between decks of a ship, when carefully finished with this wood, and well varnished, has a showy as well as a substantial appearance, and such a finish has become much the fashion within a few years. To the great demand for this wood for ship-building, we may add that which is created by its natural fitness for all purposes about machinery, where wood is used at all; also the universal demand for Georgia pine throughout the United States for floors, and many other purposes among housewrights. England imports from the State of Georgia, through the port of Savannah, at least twenty cargoes of three hundred thousand feet each, superficial measurement, per season; and when cotton

freights are very low, the ratio of pitch pine shipments is greatly increased. An agent of the British government some few years ago, after exploring the pine regions of the southern country from Virginia to Louisiana, pronounced the yellow pine of Georgia to be superior to anything of the kind in the United States. This opinion seems also to have been fully entertained by the contractor for the French government, who located himself in this State after a long and critical search after the best pine of the country. The West India Islands, both British and French, take off vast quantities of Georgia pine every year, for which they pay in their own products, and in specie and bills of exchange. With these important outlets for the lumber trade of Savannah, and with the constantly increasing demand for the article, we need not be surprised to find the exports of it in ten years more than quadrupled. The Savannah and Ogeechee Canal, connecting the waters of the two rivers that give name to this work, and now nearly restored to a navigable condition, is destined to be the principal channel through which the lumber trade of Savannah is to be increased to a very great extent, so much so that it may soon bear a very respectable comparison with the two great staples of the State, cotton and rice.

It remains to say a few words concerning the probable increase in the product of this last named important article of food. The very high prices obtained by planters for their rice the present season, will in all probability excite many to a much more extensive cultivation of the article in future years. The introduction of machinery for threshing, cleaning, and preparing rice for market, has much facilitated the trade, and has sent it abroad in a much fairer and more perfect condition both as to grain and quality. Georgia rice may now be said to vie with, if not to excel, any other in the world. The inducements for cultivating it being increased by three important causes, viz.: increased value in market, facility of transportation, and foreign demand, it is not assuming too much, perhaps, to say that the rice crop of Georgia centering in Savannah, will in the coming year exceed 34,650 casks the crop of the past year, 1846. The cotton crop of this State, as before remarked, must be greatly increased by the causes we have mentioned, viz.: the improved demand, and facilities of transportation; that this entire crop of more than *three hundred and fifty thousand* bales, together with a respectable portion of that of Alabama and East Florida, may, by proper exertion, all be secured for the benefit of the commerce of Savannah, can scarcely be doubted by any one acquainted with the simplest elements of cause and effect. The connection of Augusta with Savannah by a railroad from the Eighty Mile Station on the Cen-

tral Railroad, running through Burke county, and having its first terminus in Wanesboro, was a favorable idea for the interests of Savannah. It will remove beyond temptation the products of two or three counties that now lie more convenient to Augusta than to Savannah. It is not to be supposed that internal improvements in and about the State of Georgia will cease when all these roads we have named shall be completed, it is not in the nature of things that such should be the case; on the contrary, road will beget road, and track intersect tract, until the entire State shall be brought into intimate union, not only with itself but with its neighboring States, and thus gradually bring about the consummation so desirable for Savannah and so necessary for her commercial eminence.

In this diffuse and irregular sketch of the present position and future prospects of the trade of Savannah, we have not aimed at tabular exactness, for it was difficult with such materials as we had before us, to be very methodical; It was our design only to shadow forth, as it were, some of the strong features of the subject, and leave to time and the accumulation of more certain data, the completion of the intention.

Art. IV.—THE OUACHITA COUNTRY.

No. III.

THE OUACHITA AND BLACK RIVERS.—MONROE, COLUMBIA, HARRISONBURG, FARMERSVILLE, ETC.

A geographical sketch of Ouachita must necessarily embrace not only the country through which the river of that name flows, but also of all its tributary streams, comprehending its whole valley; if limited within the present boundaries of the parish, it would not be interesting nor add to the general knowledge of this section of our State.

The surveys made by order of the general government, have afforded means to make accurate maps, and give correct information as to the geographical position of all that has been surveyed.

I shall therefore offer but a few remarks which may convey some idea of the advantages which that situation presents to the inhabitants of the Ouachita valley.

The Ouachita river has its origin in the State of Arkansas; it is navigable for steamers as high up as the small new town of Arcadelphia,

about five hundred and ten miles from its juncture with the Tensas and Little River, where it takes the name of Black River, which is but a continuation of Ouachita for sixty miles to its entrance into Red River, in all five hundred and seventy miles, which enters the Mississippi, (at present,) thirty-nine miles below. Before the cut off made there by Captain Shreive, the distance was but thirty miles.

From November to July, the Ouachita river presents a safe navigation for steamers. Few streams are as clear of snags and other impediments. It has been but once in nearly fifty years navigable during the whole year. The receding of the waters taking place at a time when all the produce has gone to market, and all importations have reached their destination, the interruption during four or five months is not so disadvantageous as might be supposed.

Several streams carry their tribute to the Ouachita. The most important on the western side, the Little Missouri in Arkansas, distant about two hundred and eighty miles above Monroe, is not navigable for steamboats for more than about thirty miles from its mouth; the bayou Darbonne, about two hundred and seventy miles below the Little Missouri, is the next met with on the same side. Steamboats have ascended it as far as Farmersville, about sixty miles.

Little river is a stream of some importance; it takes that name from the junction of the bayous or rivers Castor and Dogdomane, both having their springs among the hills which intervene between the Ouachita and Red River. It is now navigable at high water its whole length, about one hundred and twenty miles.*

On the eastern side of the Ouachita the first considerable stream met with is the Bayou Salines, about one hundred and fifty miles above Monroe; it is navigable to a distance of about thirty miles from its entrance into the Ouachita. The next important river is the Bartholomew, which has its origin in hills near Little Rock, in Arkansas. Steamboats have ascended it for upwards of two hundred miles from its mouth into the Ouachita; thirty-six miles above Monroe it could be made navigable at a small expense of labor much higher up in Arkansas.

The river Aux Bœuf, which has its beginning in the overflowed lands

* The distances here given are computed *by water*, according to the common opinion of pilots and travellers on those rivers, which differ in their meanderings. Thus the course of River aux Bœuf, as far as navigable, is on an average three times as long as a nearly straight line would make it. The same remark may apply to the course of bayou (ought to be river) Bartholomew as far as the line between Louisiana and Arkansas, (it is straighter above,) whereas on the Ouachita and most of its other tributary streams the difference does not exceed the proportion of two to one.

between the Bartholomew and the Mason, has its mouth at a distance of one hundred and forty miles below Monroe. Steamers have been as high up on that stream as a place called the Prairie Jefferson's Landing, a distance of about two hundred and fifty miles. The bayou Louis has its entrance in the Ouachita; seven miles below the mouth of River aux Bœuf, it is navigable by steamers its whole length, and through the lake of that name about forty miles. On the banks of that lake the French had, it is believed, formed one of their earliest settlements in this country, as mentioned before.

The Bayou Mason, situated between the River aux Bœuf and the Tensas river, is a small but handsome stream; is navigated by steamboat upwards of sixty miles, and could easily be made for a much greater distance; it empties into the lake Tensas, the river of that name passing through it, and carrying its tribute thirty miles below, where by its junction, the Little river and Ouachita, it forms that continuation of the last named stream which is known by the name of Black river.

The Tensas issues from Lake Providence, in the parish of Carroll, its course being nearly parallel to the one of the Mason, and is now navigable for steamboats a distance of upwards of one hundred miles from its mouth. Few countries offer as many advantageous means of communication for transport of produce as the one embraced within the limits of the Ouachita valley. From several points on that river, where the distance due east to the Mississippi varies from forty to sixty miles, we have five navigable streams running nearly parallel, to wit: the Mississippi, Tensas, Mason, River aux Bœuf, and Ouachita; besides these there are several of small importance, which, however, can be made useful in intersecting the larger ones, or be rendered navigable for various distances.

The whole valley of Ouachita, contains at present about fifteen hundred miles of navigation; that advantage can be easily increased. Of these about two hundred and forty are in the State of Arkansas, the remaining twelve hundred and sixty in Louisiana. That part of the valley within this last State is bounded on the north by the line dividing the two States running on the 33° of latitude, and extending on that line from the 14° 35' longitude west from Washington, to 16° 15', it terminates at the mouth of Black river, in latitude about 31° 20' longitude 1d° 16'. On its eastern limit it is nearly parallel to and approaches the Mississippi; on its western side it runs at various distances from Red river on the ridges dividing the waters, which find their way into the last from those which run into the Ouachita, covering an area of, in round numbers, about five thousand five hundred superficial miles.

An uncommon topographical feature is met with on the Ouachita river. It is that large extent of country called emphatically the Overflow; it begins at a distance of seventeen to eighteen miles above the mouth of the Bartholomew, and extends about eighty miles higher up, its breadth varies from two to ten miles on both sides of the river, forming an immense lake or reservoir, which retains a large quantity of water, which when the rivers are full, would probably submerge the country below if not remaining there until the streams getting low, it proportionally subsides.

Several small towns or villages but lately called into existence are situated on the banks of the Ouachita river. The northernmost one is Arcadelphia, about seventy miles below the Hot Springs in Arkansas; the next one descending is Campden, at the place former called Ecore à Fabri; a few short years ago but a single warehouse met the eye where now a rapidly growing town covers the land around the first solitary building.

About sixty miles below is the small village or rather hamlet of Champagnolle; it is rather a landing for steamboats having freight for the interior, or receiving cotton from the settlers in the neighborhood. It is situated not far from a place formerly known by the name of La Cache à la Tulipe. This was the (probably) *nom de guerre* of a Canadian hunter, who used it as a hiding place for his peltry, an ordinary custom of that primitive race of European descent.

Ouachita city, opposite the mouth of the Bartholomew, is a village but lately formed on the western bank of the Ouachita. The incorporated town of Monroe, the ancient site of Fort Miro, in latitude $32^{\circ} 30'$, and about $30''$, is the largest in the Ouachita valley, well situated as a central point for the commerce of the surrounding country.

Columbia, in the parish of Caldwell, about eighty miles below Monroe, dates its beginning from but a short time before that parish was detached from the parish of Ouachita. It is the seat of justice for the parish.

Harrisonburg, in the parish of Cataoula, about seventy miles below Columbia, is a small town, the building of which was begun some time before Monroe assumed its present name; it is situated at the foot of the first pine hills met with on ascending the river. It possesses an advantage over Monroe, being accessible by steamboats during the whole year, while the navigation is interrupted at low water a short distance above by a flat stony and gravelly shoal nearly a mile long.

Farmersville, the seat of justice of the parish of Union, is the largest town or village in the interior, it is situated at the present head of navi-

gation of Bayou Darbonne, it is increasing and bids fair becoming a town of some importance.

It would be a bootless task to enumerate all the inland villages in that part of the Ouachita valley within the limits of Louisiana, suffice it to say that every parish has its court house, which uniformly becomes a *nucleus* soon surrounded with houses forming towns, villages or hamlets, in proportion to the extent of the parish, its population and general resources.

Art. V.—MEXICO AND THE UNITED STATES.

SECRET MEMOIR OF ARANDA, MINISTER OF SPAIN IN 1783, IN RELATION TO THE INDEPENDENCE OF THE AMERICAN STATES.

NOTE BY THE EDITOR.—The four articles which were published during last year in our Review, from the pen of the Hon. Joel R. Poinsett, entitled *THE MEXICAN WAR*; *THE REPUBLIC OF MEXICO*; *MEXICO AND THE MEXICANS*; *OUR ARMY IN MEXICO*; contain a vast fund of information in relation to a country with which he has long been profoundly and practically familiar, and in reference to the best mode of conducting offensive operations against it by our forces. It is not singular that so sagacious an observer as Mr. Poinsett, and so military a mind should have, at a very early date, foreseen almost everything that has since occurred in our relations with Mexico, unfortunate in so many respects though brilliant in victories. That the frank and open expression of opinion in these articles should have had little practical effect is not more remarkable than many other things we see around us every day. We would enjoin a re-perusal of them upon every one, so convinced are we of their being among the most valuable that have yet appeared in the country. They present a calm discussion without show of partizan spirit, and as such have been received everywhere.

The Spanish minister, Count de Aranda, after signing the treaty of Paris in 1783, submitted to the King a secret memoir, in which he declares the independence of the British Colonies fills his mind with grief and fear, and expresses his belief that both France and Spain acted in opposition to their interests when they espoused the cause of the Colonies. He regards the existence of the United States of America as highly dangerous to the Spanish American possessions, and on this subject uses the following very remarkable language:—

“This federal republic is born a pigmy, if I may be allowed so to express myself. It has required the support of two such powerful states as France and Spain to obtain its independence. The day will come when she will be a giant, a colossus formidable even in these countries. She will forget the services she has received from the two powers and will think only of her own aggrandizement. The liberty of conscience, the facility of establishing a new population upon immense territo-

ries, together with the advantages of a new government, (meaning free,) will attract the agriculturalists and mechanics of all nations, for men ever run after fortune; and in a few years we shall see the tyranical existence of this very colossus of which I speak."

"The first step of this nation after it has become powerful, will be to take possession of the Floridas in order to have command of the Gulf of Mexico, and after having rendered difficult our commerce with New Spain, she will aspire to the conquest of that vast empire, which it will be impossible for us to defend against a formidable power established on the same continent and in its immediate neighborhood."

"These fears are well founded; they must be realized in a few years if some greater revolution even more fatal does not sooner take place in our Americas."

In conclusion he proposes as the best means of averting this imminent danger, that Spain should relinquish the Americas and establish three of the infantas, one to be king of Mexico, one of Peru, and the other of Costa Firme, retaining under the dominion of the mother country only Porto Rico and Cuba; and recommends that a treaty of commerce should be entered into between France and Spain in relation to these countries, from the advantages of which Great Britain should be excluded.

Art. VI.—AGRICULTURE OF LOUISIANA.

THE PRESENT AND FUTURE PRODUCTS OF LOUISIANA, AND THE MEANS FOR AUGMENTING THEM.

J. D. B. DE BOW, Esq.:—

In the few remarks I propose submitting to the readers of your valuable publication, my object will be rather to elicit than to impart information. A residence of a few weeks only in a State whose climate, soil, and topography is so entirely new to me, and even this brief period having been almost entirely absorbed in business pursuits, has afforded me little opportunity of acquiring sufficient knowledge of the products of this State to become an instructor.

In some occasional numbers of your Review that have come under my notice, I have been gratified to perceive many valuable practical articles, particularly on the subject of agriculture, which are calculated to develop the great and hitherto untasked resources of this State. The history of the production of former times, our experience of the

present, and a wise forecast of the future, are all essential for determining the most successful policy for the reward of enterprise, labor, and capital hereafter. From the accumulated facts of the past, and the data they afford on the subject of climate, soil, and production, in connexion with the probable future wants of the commercial world, a system of practical agriculture for this State may be deduced which will be subject to little risk or fluctuation, while it is attended with large and measurably certain profit.

A national board of agriculture, comprising great intelligence, sagacity, and judgment, which should have the whole subject of American production, agriculture, manufactures, and commerce, before it, could do more to indicate the true policy for each section to pursue, than can be acquired in any other way. This was the favorite plan of our illustrious Washington, and has been sedulously cherished and ably advocated by many of our most intelligent statesmen since; and it would seem reasonable to the simple minded and practical citizen that while our peace establishment requires \$8,000,000 for the support of the army and navy, and our war appropriations for redressing real or fancied injuries, come up to \$40,000,000, a few thousand might be reasonably asked for the development of our natural resources, in which, after all, consist our only safe reliance and strength.

Next to a national board, and in its absence, one organized by the State Legislature is the most important, and where this is unprovided by the proper authority, individual associations, comprising representations from every interest within the State, is the only means left for achieving this object. Such a one, I am happy to know, exists here, yet without that spirit and general interest which is essential to secure the requisite success. The means are entirely within the reach of the planters whenever they choose to call them forth, and it is to be hoped that they will not long permit them to remain undeveloped.

No country of equal extent on the face of the globe seems to possess such a prodigal affluence, such an unstinted measure of agricultural wealth as the alluvial portions of Louisiana. With an area of delta formation of several thousand square miles, which no combinations of earths or organic materials for the highest production of vegetable fertility ever surpassed; with wide-spread luxuriant prairies, and its rolling productive uplands, every acre of this State seems teeming with the elements of vegetation, the foundation of future wealth, and the sustenance of future millions. And every section of it is accessible within a convenient distance by navigable waters, or admits of easy con-

struction of roads. Even the waters which pervade and border the State would furnish sufficient food for a population larger than now inhabits it. With a climate generally mild and healthful, and with such redundancy of resources for the support of life and the acquisition of wealth, it would seem almost superfluous to suggest the means or the motives for the attainment of either. Actual want or suffering under such circumstances cannot exist, but that absence of individual prosperity is often to be found that creates a morbid restlessness under present exigencies, and induces efforts for its alleviation in the removal to some fancied El Dorado in the yet unexplored wilderness. Such would do well to consider that there is scarcely an acre either of land or water in Louisiana that cannot be put to some profitable use, and that, too, near a market whose commerce reaching to every part of the habitable globe, renders surfeits or over supply absolutely impossible. Let us consider these products somewhat in detail.

Sugar may undoubtedly be assumed as the leading staple of the State at the present moment. In 1845, there were produced here from nine hundred and fifty five sugar-mills 207,337,000 lbs. of sugar, and about 9,330,000 gallons of molasses, amounting together to near \$15,000,000. It is estimated there will be during the present year, 1,240 mills, which, at the same ratio, will carry production up to about \$19,000,000 in this article alone. Accidents, mismanagement, and unforeseen casualties from the elements and the season, will probably lessen the quantity, yet it is certainly within reason to assert that scientific and careful cultivation, the use of better machinery, the general application of well established chemical principles in the manufacture of the cane, would swell the amount far beyond the assumed maximum.

The extension of cane cultivation is undoubtedly advancing more rapidly at the present moment than at any former period. Each succeeding year witnesses the extension over new territory. It is descending on both banks of the river near to its mouth; it is climbing still higher upwards on the main stream and its tributaries, and it is fast occupying every one of its innumerable bayous or outlets, while more thorough ditching and especially the adoption of draining wheels is rapidly bringing into use larger portions of tillable land in the rear, and making all far more productive. The last we conceive to be one of the most efficient means for reclaiming vast bodies of land for the future cultivation of the cane. Still further means for the augmentation of the crop are to be found in much deeper and more thorough ploughing; the use of the sub-soil plough; manuring with the bagasse and trash buried between the furrows; and a proper rotation with the cow pea or other green or vegetable fertilizers.

Cotton may be ranked next in the order of the staples of this State. But a few years since this was the leading product; but while it has been reclaiming new territory and advancing in quantity, in much of the old, the greater profit afforded by the cane has enabled the latter to usurp many of the plantations hitherto exclusively devoted to the former. In the cultivation of this leading export of America, much improvement has been witnessed within the few past years, and although excessive rain or drought, the army worm or caterpillar, blight, mildew, or rust, occasionally disappoints the hopes of the planter, yet a closer study of the habits and diseases of the plant, a careful selection of seed, the introduction of new and improved varieties, as the mastodon and others, and a nicer and more careful cultivation are all aiding to swell the aggregate of the cotton fields.

Maize, or Indian corn, ranks next among the products of the State, though what is raised within it enters to a small extent only in the exchange of commerce. It is generally consumed on the plantations where it is produced, and its value is absorbed to swell the exports of the two former staples. If viewed, however, as it is, an indispensable article of food for the laborer, the working animals, swine and poultry, it assumes a vast importance among the leading objects of attention, and much beyond the measure assigned to it at the current rates in dollars and cents. Besides the large expense of preparing, sacking and sending to market, there to pay additional sums in freight, drayage, storage, *rattage* and commissions, there is a corresponding expense of purchasing, freight, drayage, etc., in bringing it back to the plantation for consumption. All these several items must first be subtracted before we can get at the relative value of corn raised on a remote plantation or the one where it is consumed. If we go a step further, and consider its presence or absence in our granaries, as involving the question of sustenance or starvation, of life or death, of which we have at the present moment so terrible an example in Europe, we shall hereafter place a higher value on this article than we have hitherto done since the early settlement of the country. What has occurred elsewhere may occur here, and exemption from any particular calamity hitherto is no guarantee against its presence hereafter. The cultivation of maize on nearly every plantation within this State to the extent at least of its own consumption, ought to be considered a fundamental principle in its management.

Although not equally adapted to the highest production of corn as some of the choice lands between the great chain of northern lakes and the south line of Tennessee, yet where well drained and properly

treated, the delta of Louisiana every where gives a remunerating crop of corn, and the lighter soils of the uplands requires but a judicious system of tillage to make a fair return in this crop for the labor and expense bestowed upon them.

If considered in an economical or domestic point of view, Indian corn throughout the valley of the Mississippi, is the most profitable crop that can be raised, as one man's labor will produce more human and animal food than in the cultivation of any other one product. With the best ploughs, a planting machine, cultivators and harrows, one person can easily plant, cultivate and harvest fifteen acres with four months labor, that will produce an average of forty bushels per acre, a quantity sufficient to sustain the existence of forty or fifty persons for an entire year. It is also like the cane, subject to fewer accidents or maladies than any other crop. Nothing but frost, excessive moisture, poverty of the soil, or negligent management, will prevent a good crop. The first may be always avoided by a late planting; thorough drainage effectually removes injurious moisture; deep ploughing and fine pulverization, especially the use of the sub-soil plough, will mitigate, if it does not wholly obviate the effects of drought, and rotation of crops and occasional application of green manures, if others are deficient, will be sufficient to prevent exhaustion.

Rice at one time formed an important staple of the State, and is now produced in quantities far greater than is generally supposed, yet to an extent much less than the soil, climate, and value of the article will justify. The rice lands of the Carolinas and Georgia are considered among their most valuable, the best being worth five hundred dollars per acre, while the best cotton lands will not command more than fifty. Why should they not be of equal value here? The want of skilful management, we fear, must be the only answer. Next to maize, rice is capable of affording the largest amount of food to man. In localities precisely suited to it, this capacity even much exceeds its rival, and nowhere is it believed it can be raised more advantageously than in this State. Immense bodies of the swamps and lowlands throughout the delta, are easily susceptible of being every way fitted for the highest and most profitable production of this grain. Suitable dykes or levees, proper ditches, both for draining and flooding the fields, with the addition of draining wheels, where their presence is necessary, is all that is necessary to secure millions of acres for this object that are now solely tenanted by every worthless specimen of the amphibious, vegetable, and animal creation. Rice may also be advantageously grown upon the uplands, and even the highest pine soils will yield enough to make

it an object of attention. But in such great care is requisite to prevent exhaustion, which is scarcely possible on the rich alluvial bottoms that can be properly flooded, as the turbid water that overspreads the fields comes to the support of the crop charged with every necessary ingredient of vegetable nutrition.

One reason why rice has not hitherto been made an object of greater attention here is the want of proper machines for planting and preparing for market. Those of the latest and best construction have been for some time used in the Atlantic States, and may now be had in this city. With these at command, with a soil, climate, and the facilities for irrigation so entirely adapted to the purpose, there is no good reason why rice should not again become one of the most important branches of agricultural attention in Louisiana.

Indigo was the leading product of this State a century since, yet now it is scarcely cultivated. Two millions of acres of the most fertile cotton lands within the State are every way adapted to its profitable growth. Its culture here was gradually abandoned for the greater profits afforded by other articles, particularly sugar and cotton. The demand for it from the extension of our manufacturers is annually increasing its consumption in this country, and the application of the latest chemical science to its maceration and preparation for market, would undoubtedly render this an object well worthy of attention at the present time. Tobacco may be raised here of the finest quality and to an unlimited extent. If production be combined with its manufacture for the supply of this and other markets, few objects would better repay the labor and capital invested than this. The choicest qualities of leaf are produced on this soil which are scarcely surpassed by the best brands of the Havana.

Madder, woad, weld, saffron, sumach, etc., used primarily for dyes, and already in large demand by the northern manufacturers in this country, can be raised here with decided profit. The first is also a valuable food for cattle; saffron is used medicinally, and the astringent properties of the sumach renders it a substitute for the tannin of the oak and hemlock, where they do not exist. Roots and almost every species of culinary vegetable can be raised to the full extent of the wants of the inhabitants, and the sweet potato may be grown for exportation with decided profit. Of fruits, the orange and the fig thrive remarkably within the State, and the former may be exported, and with equal advantage to the planter as any other crop. The peach, the apricot, and nectarine produce largely and of the finest quality, when properly treated. The plum and the apple, the olive, the lemon, the lime, etc.,

may, with proper attention be reared on such soils and in such localities as are suited to their habits and characteristics. The wild mulberry grows spontaneously in the forests of this State, and the *morus multicaulis* and other varieties of the Italian succeed admirably on the drier soils. This ensures success for the silk worm wherever introduced, as it may undoubtedly be hereafter, on the uplands with decided advantage. The equable temperature and condensed nutritive foliage afforded by such localities, and they sweep around a larger portion of the northern part of the State, will undoubtedly produce healthy silk worms, and as heavy, valuable cocoons as are yielded in any part of the world.

These are a few among the many objects that should arrest the attention of the intelligent and enterprising agriculturalists before seeking them further south and west, and still more remote from the seaboard, where for a coming century at least he must look for the most profitable market for his products.

The false ambition for large plantations, and operations and achievements beyond the legitimate means of the owner, has been and still continues to be the bane of citizens of our new States. This policy may result in giving to the few, large landed estates, yet really less pecuniary income than would result to the shrewd manager, where a denser population existed, and more aggregate and active wealth circulated among the mass, the necessary result of a greater and more *intense* production. In looking over some of the plantations of this region, where large masses of land are either wholly or partially unsubdued, and the remainder admits of much higher cultivation, one cannot but be forcibly impressed with the consideration that the old maxim "*divide and conquer*," has a much more pregnant and salutary bearing on the welfare of the human race than was ever assigned to it by the ambitious Roman. "A little land well tilled," while vastly more beneficial to the State and the middle property classes, is perhaps, of equal or even greater advantage to the opulent, than the present system of overgrown and half cultivated plantations. A division of labor and a variety in the objects of agricultural pursuits, are equally essential to call into profitable action the various traits of human character, the attainments of the greatest good to the greatest number, and the full developement of the vast agricultural resources of this great State.

The foregoing embrace a few hints which may be successfully and almost indefinitely extended by your more experienced correspondents,

for the more effectual and profitable augmentation of the present and future products of Louisiana.

Very respectfully,

R. L. A.

Art. VIII.—THE NEGRO.

J. D. B. DE BOW, Esq.:—

YOU request the correspondence of southern planters, and I am one. If the "raw material" which I give you be of any service, use it. The subject shall be "*Our Slaves.*"

I have been conversant with the health of negroes and the treatment of them in many localities and by many masters. I have practised medicine on large and small estates, and have attempted different modes of management, observing closely and to profit the good or bad systems of others. I am a southerner and my ancestors before me were southerners. I am a slaveholder and have been so for a quarter of a century.

There are planters even at this date who regard their sole interest to consist in large crops, leaving out of view altogether the value of negro property and its possible deterioration by unskillful usage, like any other property. To say nothing about morality, this is a great pecuniary evil, as can easily be shown.

Negroes as a race can neither do as much work nor continue at it as long as the whites. This all admit, and yet how few practically. On how many estates, not from any bad motive, but from the want of due reflection, are they called upon after the labors of the day are over in the field, to prepare their food by cooking and to do the washing, etc., of themselves and families. Our ideas are that such an arrangement is bad economy to the planters, and that a distribution of labor here as everywhere would be greatly to their advantage.

Houses for negroes should be elevated at least two feet above the earth, with good plank flooring, weather proof, and with capacious windows and doors for ventilation, a large fireplace, and wood convenient. A negro house should never be crowded. One sixteen or eighteen feet square is not too large for a man and woman and three or four small children, and the master or overseer should look weekly to its cleanliness.

Good water is far more essential than many suppose, or than I

could be persuaded myself until within a few years. Cistern water not too cold will on any plantation save enough in doctor's fees to refund the extra expense. I would not allow bayou, or spring, or well water to be taken into the field, nor should there ever be a deficiency of water there. Negroes are a thriftless, thoughtless people, and have to be restricted in many points essential to their constitutions and health. Left to themselves they will over eat, unseasonably eat, walk half the night, sleep on the ground, out of doors, anywhere.

I have thought that I could tell beforehand when negroes would be sickly, and could point to those who would be affected. There are constitutions that for a time will bear up against exposure and hard usage, but nature will after a while give way, and even with the stoutest constitutions we can rely upon disease following a cold wet winter. We can expect the negroes to be sick who have been exposed early or late, in wet, in cold, in mud and water.

The great object is to prevent disease and prolong the useful laboring period of the negro's life. Thus does interest point out the humane course.

I would therefore say rather lose the time than suffer the slave's exposure to the elements. Send them into the field at daylight and no earlier. Let the breakfast occupy half an hour and the dinner one hour, and the day's work be ended in season for them to be at home by nightfall.

In relation to food a word might be ventured; the point is to provide enough. Too little, independently of other effects, will lead to pillage. A peck of meal, four pounds of good meat, with such vegetables, potatoes, peas, etc., as can be provided without any expense, is a good week's allowance. Cleanliness in cooking should be insisted on; negroes suffer from the indiscreet use of fruit, it should be prohibited them except at mid-day, and as in the summer season at the south little field work at this period of the day can be done to advantage, it is well to rest.

I have followed my own laborers for many years, and though not a large proprietor, my crops have not shown badly, and I am certain with the system I advise my efforts have been attended with the best results.

NOTE BY THE EDITOR.—The *economical* question which our correspondent has raised in relation to the management of slaves is one worthy enough of discussion. Considerations of interest being clearly shown to be upon the side of humanity, the latter may be supposed to have acquired some additional sanction, so frail are our natures. It is one of the beauties of this world's government that there is always a

perfect harmony between the interests and the permanent happiness of men. However the good or bad treatment of the slaves as of any other created thing, is a question of morals and religion brought home upon us by the imperative decrees of the Creator himself, and is so regarded by the vast proportion; nay, we ought even say by the whole slave-holding region of the Union. As men, if not as christians, we have only to know our duty in this behalf, we think, to do it.

In relation to *slavery* many interesting subjects continually occur to the mind which we shall be most happy to have discussed in our pages by correspondents. We have, ourselves, taken them up more than once, but a variety of engagements has as often arrested our progress, and rough papers only have accumulated upon the desk.

Among these subjects, however, is not the *argument* for or against the institution, for that has long since been settled, and so far as the south is concerned, should never more be mooted. We have defended our institutions with all that reason or argument could suggest, and had there been for our judges Euclid, La Place, Newton, or Bacon, it would have been conceded to us that *moral* truth is as susceptible of lucid, convincing, overpowering demonstration as *mathematical*. But these have not been our judges. We have not been listened to while we spoke; they would not listen were one to speak from the dead. Even patience becomes a vice. What others think is nothing; for us there has come to be but one sentiment now,—as Southerners, as *Americans*, as *MEN*, we deny the right of being *called to account* for our institutions, our policy, our laws, or our government. For these there is no *explanation* to be made, no *apology*; it is sufficient that we, we the people of a State, we the people of half the States of this Union, in our sovereign capacity, in our sovereign right, in our sovereign independence of all other people or peoples upon earth, of all mortal men, have decreed our institutions as they are, *and so will dare maintain them!*

But the question of improving the moral or physical condition of the slave, or his better regulation by law and policy, adapted to his condition, his wants, necessities and rights, or his improved *status* as an agent in the production of wealth, or the history of slavery in antiquity and since, or the effects of emancipation, colonization, etc., etc., These are points of interest not only to the south but to the Union, and open a wide field for investigation and comment; we invite them.

On one or two of these points we shall venture now a few hasty notes which are all that space will admit.

Slavery and the slave trade, says Bancroft, are older than the records of human society. They existed among the Egyptians and the Hebrews. All Phœnicæa and Scythia trafficked in slaves. At Athens, at Macedon, at Rome, most repulsively under the Anglo Saxons; in Germany, France, Russia, Turkey, Italy. The population of classic Athens was 84,000 free citizens, 40,000 aliens, 400,000 slaves. The Roman slaveholder was an absolute despot. Italy and Sicily were full of *Ergastula* in which slaves were kept at labor. One of the most formidable insurrections was occasioned by the breaking up of these and the simultaneous liberation of sixty thousand slaves.* The popes

* "The South Vindicated," page 31.

of Rome admitted and regulated the institution, as is shown in the letters of Bishop England to the Hon. John Forsythe. Christianity introduced a new feature. The Crusaders established the principle that infidels might be enslaved. Even Lord Bacon seemed to admit that war might be made upon them for the propagation of the Christian faith. When the Moors, overcome by Christians, removed to Africa, all Africans were esteemed Moors; hence African slavery.* But African slavery first existed in Africa. Violence, rapine, and slaughter prevailed throughout its whole extent. The despotisms, the customs, and the superstition of Africa, have all multiplied bondage in that dark continent. In the upper country, on the Senegal and the Gambia, three-fourths of the population are slaves whose masters are the absolute owners of their children and all that they have.†

Herodotus speaks of negro slaves. The negro race exists in the catacombs in the mixed or negroid character. If negroes, as is more than probable, were numerous in Egypt, their social position was chiefly in ancient times what it is yet, that of plebeians, servants, and slaves. (Nott on the Caucasian and negro races.) Negro slaves existed in Greece and Rome. They existed in Europe before the discovery of America. As early as 1443 they were introduced from Africa by the Portuguese. The Spaniards are even said to have preceded the Portuguese. Many of the English sovereigns engaged in the African slave trade and partook of its profits. Queen Elizabeth the first. The first emigrants to America enslaved the Indians. Massachusetts received the first slaves. The proprietors of Virginia trafficked in white slaves. In 1620 African slaves were introduced into Virginia. The Barbadoes planters introduced them into Carolina coeval with the colony. In a few years they outnumbered the whites two to one. The slave trade terminated first at the south, viz.: in Virginia, 1778. Similar laws were passed in Denmark, 1803; the United States under the constitution, in 1808; Great Britain, 1808; France, 1815; Sweden, 1813; Netherlands, 1818; Spain, 1820; Brazil, 1826.‡

The census of the United States shows

1790	697,697 slaves,	3,929,827 population,	or 21.59 to 100
1800	896,849 "	5,305,925 "	18.99 "
1810	1,191,364 "	7,289,314 "	19.53 "
1820	1,538,064 "	9,638,181 "	18.99 "
1830	2,010,436 "	12,856,407 "	18.53 "
1840	2,487,355 "	17,063,353 "	14.50 "

* Southern Review.

† Thornton's Slavery, page 7

‡ Without expressing any opinion upon the questions which have been raised in relation to the *physiology* of the negro, we would extract a few facts from the lectures of Dr. Nott of Mobile, which excited so much attention. We state his facts without adopting his speculations, theories, or conclusions.

"When the Caucasian and negro are compared, one of the most striking and important points of difference is seen in the conformation of the head. The head of the negro is smaller by a full tenth; the forehead is narrower and more receding, in consequence of which the anterior or intellectual portion of the brain is defective; the upper jaw is broader and more projecting; the under jaw inclines out, and is deficient in chin; the lips are larger and correspond with the bony structure; the teeth point obliquely forward and resemble in shape those of carnivorous animals; the bones of the head are thicker, more dense and heavy, and the same fact exists with regard to the other bones of the skeleton. Dr. Gall in his laborious researches, has established the important fact, which is now conceded, that there is in the animal kingdom a

Art. IX.—THE MISSISSIPPI.—ITS SOURCES.—MOUTH AND VALLEY.

THE great CENTRAL REGION OF AMERICA, which extends from the Rocky mountains to the lakes and sweeps away to the mouth of the Atchafalaya, and along the shores of the gulf—bounded by a perimeter of two thousand leagues, with an area of a million and a quarter of square miles, a population verging upon that of all the remaining portions of the Union, and a trade demanding access to all the markets of the world, belongs to the history of the generation of men that are now alive, and in the creation of which they have been the moving agents. In comparison, all the marvellous developments of the past sink into nothing; the famed fertility of the Nile, the Scandinavian forests prolific of men, and earning the epithet “cradle of the human race,” the overshadowing growth of Rome and Roman power. Nothing,—nothing in the scale of progress of this western world, sobering rather than exciting the fancy that would contemplate its future.

regular gradation in the form of the brain, from the Caucasian down to the lowest order of animals, and that the intellectual faculties and instincts are commensurate with the size and form. In animals where the senses and sensual faculties predominate, the nerves coming off from the brain are large, and we find the nerves of the negro larger than those of the Caucasian. In other portions of the skeleton, differences not less marked are presented. The arm of the African is much longer than in the Caucasian. A negro of five feet six has an arm as long as a white man of six feet. The arm from the elbow to the hand is much longer in proportion than in the white man; his hand is longer, more bony and tendinous; the nails more projecting and stronger. The chest of the negro is more compressed laterally, and deeper through from before backwards; the bones of the pelvis in the male are more slender and narrow; the muscles on the sides of the pelvis are less full, but more full posteriorly. In the two races the lower limbs are in their relative proportion reversed; in their *entire* measurement the legs of the African are shorter, but the thigh longer and flatter. The bones at the knee joint instead of being straight, are joined at an obtuse angle, pointing forward. The shape of the shin-bone, calf, foot and heel are familiar to you all.”

“Among the slave population of Louisiana, the insane and idiots number 1 in 4,310; in South Carolina, 1 in 2,477; in Virginia, 1 in 1,299; but what a different picture is presented at the North. In Massachusetts there is in that class of population, 1 insane or idiot in 43, and in Maine, 1 in 14!!!

“From a correspondence published in the Boston Statesman, in April last, are taken the following statistics:—

“In a colored population of 2,634,348, including free blacks, there are 1,980 over 100 hundred years of age; whereas there are but 647 whites over 100 in a population of 14,581,000.

“Dr. Niles in a pamphlet published in 1827, gave a comparative statement of mortality in the cities of Philadelphia, New York, and Baltimore, deduced from official reports of the Boards of Health of the respective cities, from which it appears that in the years 1823, 4, 5, and 6, the deaths were as follows:—

	New York	Philadelphia	Baltimore
Whites,	1 in 40	1 in 31,82	1 in 44,29
Free Blacks,	1 in 18	1 in 19,91	1 in 32
Slaves,			1 in 77

In Boston the number of deaths annually among the colored population, is about 1 in 15, and there are fewer pure blacks in this city than any other. The same comparative mortality between mulattoes and blacks exists in the West Indies and Guiana, where unfavorable social causes do not operate against the mulattoes as in the United States.

It is not for us now to dwell upon the era of savage domain over the empire; the first whisperings of its existence breathed to European ears; the early and romantic adventures to its midst; the marvellous narration of the early explorers and travellers; their lives of incident and daring; their successes and reverses; the triumphant progress of civilized population beyond all haunts of civilized life; the aboriginal yielding to the stern destiny which had decreed him to melt away, a tenant at sufferance, only until the coming of the lord proprietors of the soil.

At the era of the census of 1790, after the American revolution had been won, after sixteen years of American independence, and the adoption of a federal Constitution, nine-tenths of all the people of America were eastward of the Allegheny mountains. Scattering settlements only had passed this great barrier. "Tribes of fierce savages stood opposed, but the destiny of things could not be stayed. During the decennial period of 1790 to 1800 the savages were crushed and settlements greatly extended and population increased, expanding into the central basin."

This *central basin* includes the western portions of the States of New York, Pennsylvania and Virginia, and the whole of Kentucky, Tennessee, Alabama, Mississippi, Louisiana, Arkansas, Missouri, Illinois, Indiana, Ohio, Michigan, Iowa and Wisconsin.

The population of these vast territories was in 1800 482,777, having increased about one and a half per cent. per annum since 1790. In 1810 it amounted to 1,090,158, having doubled in ten years; in 1820, 2,217,464, having doubled again; in 1830, 3,672,569, or about seven to the square mile; in 1840, 5,302,918, or ten to the square mile. In these items the western portions of New York, Pennsylvania and Virginia are not included. If they be added for 1840, the total western population may be set down at 7,948,789, or fourteen to the square mile. The following table, prepared by Mr. Darby for the use of government, is computed on the supposition that the decennial increase from 1830 to 1840, has since been preserved:

POPULATION OF THE GREAT CENTRAL BASIN IN 1847.			
Western New York,	50,600	Arkansas,	161,600
Western Pennsylvania,	564,600	Missouri,	529,000
Western Virginia,	222,300	Illinois,	867,000
Kentucky,	834,970	Indiana,	891,566
Tennessee,	857,590	Ohio,	1,862,400
Alabama,	759,500	Michigan,	321,000
Mississippi,	459,070	*Iowa,	60,000
Louisiana,	434,100	*Wisconsin,	50,000
TOTAL,			8,925,696

* These estimates of Mr. Darby in relation to Iowa and Wisconsin are greatly

Being about eighteen to the square mile, or one-ninth the density of Great Britain, Portugal, Spain, and France. The whole population of the United States at the same period being computed at 21,174,557.

To give any notion of the agricultural wealth of this region would require access to more complete information than any that can be had by us now. The census, which was taken in 1840, whatever its merits, could be of but little practical value, since in the progress of such a country the history of several years is as a century in older communities. We will yet introduce a few facts, if only to stimulate further the readers investigations.

ESTIMATED AGRICULTURAL PRODUCTS OF THE GREAT WEST, 1845.*

	Wheat. bushels.	Oats. bushels.	Corn. bushels.	Potatoes. bushels.	Tobacco. lbs.	Cotton. lbs.	Sugar. lbs.
Kentucky,	4,769,000	13,091,000	54,625,000	1,508,000	63,310,000	1,300,000	3,110,000
Tennessee,	8,340,000	8,625,000	70,265,000	9,256,000	37,109,000	48,000,000	820,000
Alabama,	980,000	1,527,000	16,650,000	1,635,000	341,000	145,000,000	12,000
Mississippi,	378,000	1,189,000	2,167,000	3,040,000	193,600	235,000,000	
Louisiana,			8,360,000	1,293,000		185,000,000	175,000,000
Arkansas,	2,427,000	436,000	8,250,000	642,000		17,000,000	5,000
Missouri,	1,525,000	5,466,000	15,625,000	875,000	13,744,000	200,000	450,000
Illinois,	4,563,000	12,957,000	25,584,000	2,631,000	1,108,000	270,000	600,000
Indiana,	7,044,000	13,402,000	30,625,000	2,680,000	3,529,000		8,000,000
Ohio,	13,572,000	24,447,000	57,500,000	4,130,000	7,576,300		3,900,000
Michigan,	7,061,000	4,815,000	4,945,000	4,555,000			3,000,000
Iowa,	793,000	661,000	2,028,000	516,000			150,000
Wisconsin,	971,000	1,200,000	672,000	938,000			300,000
Total,	52,423,000	88,336,000	297,396,000	26,695,000	125,962,400	631,670,000	194,047,000

Western New York, Pennsylvania and Virginia are also extensive agricultural regions, but it is almost impossible to give the exact amount of their products. Knowing what proportion of these States are included in the valley, and also their gross products, and remembering that the valley is by far the most agricultural, we should add at least four millions bushels wheat, three millions bushels oats, eight millions bushels corn, two and a half millions bushels potatoes, and three millions pounds tobacco, to the gross amount given above.

Mr. Calhoun, in his great Report on the Memphis Convention, kindled with the magnificent theme which was presented before him, a population pressing upon the limits of the Rocky mountains, a tonnage augmented thirty fold in thirty years, a trade already equalling the whole foreign exports and imports of the United States together, three hundred millions of dollars, and this but in the beginning. "Looking beyond to a not very distant future, when this immense valley, containing within its limits one million two hundred thousand square miles, lying in its whole extent in the temperate zone, and occupying a position midway

short of the reality. The census of Wisconsin, taken the present year, shows the total 155,000. Iowa had 43,000 in 1840, and the increase since is estimated at 12,000 a year, making the present population 120,000 at least.

* The reader will find the accurate and detailed statistics of the American crops in the numbers of the Commercial Review for 1846, particularly in the March, May, June, November and December numbers.

between the Atlantic and the Pacific oceans, unequalled in fertility and the diversity of its productions, intersected in every direction by the mighty stream, including its tributaries, by which it is drained, and which supply a continuous navigation of upwards of ten thousand miles, with a coast, including both banks, of twice that length, shall be crowded with population and its resources fully developed, imagination itself is taxed in the attempt to realize the magnitude of its commerce."

The Mississippi river, with its greater and less tributaries draining the whole of this immense country, and conducting its products and its commerce to the highway of nations, are worthy of elaborate consideration. We have designed a few pages upon this head, and suppose that there are few topics which could have wider interest with our countrymen, and few with which the world at large have less familiarity. Nature has created nothing upon our continent more stupendous than these waters, and they are as much characteristic of the great American republic as the institutions, the policy, the liberty, which distinguish it from all the nations of earth. Characteristic we say, for there is that in the physical aspect of a country, which if it does not influence the moral and political condition, is yet discovered to be in harmony with them. Vastness and grandeur in nature cannot be contemplated without elevation of thought and sentiment in nature's offspring. Could one be a craven by the side of Niagara? a slave's fetters might not be rivetted on Alpine heights. Man sympathises with nature, and nature with man, so that Goldsmith uttered but the sentiment of humanity when he exclaimed from wild and elevated prospects,

"——Creation's heir,
The world,—the world is mine."

And first of the Mississippi proper. In the 47° 10' N. lat. and the 94° 54' W. long. at an elevation of 1680 feet above the level of the ocean, and at a distance of 2896 miles, on the summit of the *Hauteurs de Terre*, the dividing ridge from the Red river of the north, a little pool fed by the gurgling waters of neighboring hills, discharges a tiny rivulet, which meandering over sand and pebble, dancing in shade and sunbeam winds on its modest way. In breadth and depth scarce measured by a span, the timid water-course mirrors nodding wild flowers, and floats forest leaves, a miniature fleet that gentle breezes waft and eddies whirl. Ever and anon it blends with kindred streamlets, and forms at last a minor lake. "From this lake issues a second rivulet, a cradled Hercules, giving promise of the strength of his maturity; for its velocity has increased, it transports the smaller branches of trees; it begins to form sand bars; its bends are more decided, and

it subsides again into a third basin, larger than the two preceding. Thus attained renewed vigor, tried its consequence upon an additional length of two or three miles, empties at last into the Lake Itasca."

For the following table of distances and elevation, we are indebted to "Bradford's Notes on the North-West, 1846."

DISTANCES ON THE MISSISSIPPI.

	From Gulf Mexico, Miles.	Altitude. Feet.
New Orleans, Cathedral and level of its pavement,	104	10.5
Red River, Island opposite Mouth,	340	76
Natchez, Light-house,	406	86
Yazoo River, Mouth,	534	—
New Madrid, Missouri,	1115	—
Ohio River, north side, Mouth,	1216	324
St. Louis, garden of the Cathedral,	1390	382
Illinois River, the Mouth,	1426	—
Prairie du Chien, American Fur Trader's House,	1932	642
Upper Iowa River,	1978	—
St. Peters River, the Mouth,	2192	744
Falls of St. Anthony, U. S. Cottage,	2200	856
Lake Cass, the Old Trading House,	2755	1402
Itasca Lake, Schoolcraft's Island,	2890	1575
Utmost Sources of the Mississippi, at the summit of the Hauteurs de Terre,	2896*	1680

The next principal river of the west and the main tributaries or branch of the Mississippi is the Missouri, a description of which we cannot better give than in the language of the eminent geographer introduced above :

The springs which give rise to the Missouri are not more than a mile distant from some of the head waters of the Columbia, which flows W. into the Pacific ocean. At the distance of 411 miles from the extreme point of the navigation of its head branches, are what are denominated the "Gates of the Rocky Mountains," which present a view exceedingly grand. For the distance of $5\frac{1}{2}$ miles the rocks rise perpendicularly from the margin of the river to the height of 1200 feet. The river is compressed to the width of 150 yards, and for the first three miles there is only one spot, and that only of a few yards, on which a man could stand, between the water and the perpendicular ascent of the mountain. At the distance of 110 miles below this, and 521 miles from its source, are the Great Falls, 2,575 miles above its entrance into the Mississippi. The river descends by a succession of rapids and falls, 357 feet in about $16\frac{1}{2}$ miles. The lower and greatest fall has a perpendicular pitch of 87 feet ; the second of 19 feet ; the third of 47 feet ; the fourth of 26 feet. Between and below these falls are continual rapids of from 3 to 18 feet descent. These falls, next to those of Niagara, are the grandest on the continent. The course of the river above these falls is northerly. The Yellowstone river, 800 yards wide at its mouth, probably the largest tributary of the Missouri enters it on the south-west side, 1216 miles from its navigable source, and about 1880 miles from its mouth. This river, at the place of junction, is as large as the Missouri. Steamboats ascend to this place, and could go farther by each branch. Chienne river, 400 yards wide at its mouth, enters the Missouri on the south-west side, 1310 miles from its mouth, in $44^{\circ} 20'$ N. latitude. White river, 300 yards wide, enters it on the south-west side, 1130 miles from its mouth. Big Sioux river, 110 yards wide, enters 853 miles from its mouth, in $42^{\circ} 48'$ N. lat., on the north-east side. Platte river, 600 yards wide at its mouth, enters it on the south-west side, 600 miles from its mouth, in $40^{\circ} 50'$ lat. Kansas river, 233 yards wide at its mouth, enters it on the south-west side, in $39^{\circ} 5'$ N. lat., at

* This table on the authority of Nicollet, Schoolcraft, makes the whole length three thousand one hundred and sixty miles.

the distance of 340 miles from its mouth. Grand River enters it on the north-east side, 240 miles from its mouth, and is 190 yards wide. La Mine river, 70 yards wide, enters it 200 hundred miles from its mouth. Osage river, 397 yards wide at its mouth, enters it on the south-west side, in $38^{\circ} 31'$ N. lat., 133 miles from its mouth. Gasconade river enters it on the south-west side, in $38^{\circ} 45'$ N. latitude, 100 miles from its mouth. The Missouri enters Mississippi river, 3096 miles from its source, which added to 1253 miles, the distance to the Gulf of Mexico, makes its whole length 4349 miles;* and it is probably the longest river in the world. Through its whole course, there is no substantial obstruction of the navigation before arriving at the great falls. Its principal tributaries are each navigable from 100 to 800 miles. The alluvial, fertile soil on this stream and its tributaries is not very broad, and back of this are prairies of vast extent. Through the greater part of its course the Missouri is a rapid and turbid stream, and in the upper part of its course, flows through an arid and sterile country. It is over half a mile wide at its mouth, and through a greater part of its course it is wider. Notwithstanding it drains such an extensive country, and receives so many large tributaries, at certain seasons it is shallow, hardly affording sufficient water for steamboat navigation, owing to its passing through a dry and open country, and being subject to extensive evaporation."

Lastly, let us exhibit a sketch of the Ohio:

"The Ohio is formed by the confluence of Alleghany river from the north, and Monongahela from the south, at Pittsburgh in the western part of Pennsylvania. The Alleghany river rises in Porter county, Pennsylvania, on the west side of the Alleghany mountains, flows into the State of New York, and returns into Pennsylvania, and is the most important tributary of the Ohio. It is navigable for boats of a hundred tons and of a light draft to Olean, Cattaraugus county, New York, 270 miles from its mouth in the Ohio, 600 feet above the level of the river at Pittsburgh, 1,280 feet above the level of the ocean, and 2500 miles from the Gulf of Mexico. The Monongahela rises in Virginia, and where it unites with the Alleghany, is more than 400 yards wide. It is navigable at a good stage of the water for large boats, 100 m. from its mouth. The Alleghany, though not larger than the Monongahela at the junction, is the more important stream. Immediately below the junction, the Ohio is over 600 yards wide, and is a placid and beautiful stream. At Pittsburgh it is 680 feet above tide water; at the mouth of the Muskingum, 541 feet; at the mouth of the Scioto, 464 feet; at Cincinnati, 414 feet; at its mouth in the Mississippi, 300 feet. Its length from Pittsburgh to its mouth, according to the Western Pilot, is 959 miles; but the distance in a direct course is about 614 miles. Its average descent is not quite five inches in a mile. The French called it *la belle riviere*, or the beautiful river; but its name, according to Heckewelder, is derived from the Indian word *Ohiopeckhonne*, meaning a very white stream, alluding to the white caps with which its gentle surface in a high wind, omitting all but the first part for the ease of pronunciation. The Ohio for some distance below Pittsburg is rapid, and the navigation interrupted at low water, by chains of rock extending across the bed of the river. The scenery is exceedingly beautiful though deficient in grandeur, exhibiting great sameness. The hills, two or three hundred feet high, approach the river and confine it on

* The navigable portion of this distance is from the Gulf to the Mouth of the Yellow Stone river, thirty-three hundred miles. We were under the impression that this was the greatest navigable "inland sea" in the world, but if the Report of Mr. Breeze to the Senate on the Railroad to the Pacific be relied upon in all particulars, we have presented to us in Asia a river which overtops ours, and dwarfs it in the comparison. We make an extract: "The Yang-tse-keang has its source in the Peling Mountains of Thibet. After an immense distance in a southerly direction it enters the Chinese empire in north latitude about 28° , then it winds its way through the richest parts of China and the most numerous population of any part of the globe, crossing the vast empire, and after having accommodated by its tributaries, its lakes, its vast and numerous windings, its intersections by canals almost the entire empire, and after drawing together on the grand canal at Ching-Kyang-foo the vast productions, commerce and resources of the greater part of this vast empire, gently rolls itself into the ocean in north latitude about 31° , just in front of the great city of Chang-hae, the port open for foreign commerce, being in length more than four thousand miles, and navigable even into Thibet."

either side. Their tops have usually a rounded and graceful form, and are covered with the verdure of an almost unbroken forest. Approaching Cincinnati, the scenery becomes still more monotonous. The hills recede from the river, and are less elevated. Heavy forests cover the banks and limit the prospect, but exhibiting a beautiful verdure, and often exuberant with blossoms. The river exhibits the same scenery as we continue to descend it, except that the hills become less bold and rocky. Many villages and farm houses are passed, through the whole course of the river; but as the bottom lands on its immediate margin are liable to be overflowed, the inhabitants prefer to settle a little back from the river, so that the dwellings in view do not correctly exhibit the population in the vicinity. Between Pittsburg and the mouth of the Ohio there are as many as one hundred considerable islands, besides a great number of sand bars and tow-heads. These last are low, sandy islands incapable of cultivation, and covered with willows. Some of the islands are of exquisite beauty, and furnish desirable situations for a retired residence. The principal tributaries of the Ohio are the Muskingum, Great Kanawha, Big Sandy, Scioto, Great Miami, Kentucky, Green, Wabash, Cumberland, and Tennessee. The last three are the most important, of which the last is the largest. One remarkable circumstance respecting the Ohio as well as other western rivers, is its great elevations and depressions. In the summer and autumnal months, it often dwindles into a small stream, affording limited facilities for navigation. Among the hills of Pennsylvania and Virginia, it is seen rippling over chains of rock, through which a passage is barely afforded to boats of the lightest burthen. Farther down, sand bars either extend across the stream or project into the bed of the river. Steamboats are sometimes grounded on the bars, where they are obliged to wait in peril for the periodical rise of the river. The lowest water is generally in the months of July, August, and September. The melting of the snows in the spring, and heavy rains in autumn or winter fill the river to overflowing, and many of its islands and the bottoms on its margin are covered with water. These rises are generally gradual and attended with no danger. As the waters rise, trade and navigation are quickened into activity; the largest steamboats, often of 600 tons burthen, now float in security. The average rise of the water from low water mark, is 50 feet, but in the year 1832 an extraordinary flood was experienced. The river began to rise early in February, and on the 18th of that month it was 63 feet above low water mark, and the lower parts of Cincinnati and Covington were flooded. The river here is 1006 feet wide, and the velocity of the stream at its height, 6½ miles per hour. The water discharged by the rise of the river above low water alone, would fill a lake of one square mile in surface, 107 feet deep in one hour. The surface drained by the Ohio and its numerous tributaries is about 77,000 square miles, and water 4 inches in depth on this surface would be sufficient to maintain the river at the above height and velocity for fourteen days. Such a flood as this has scarcely been known since the first settlement of the country. There are no considerable falls in the river, excepting at Louisville, Kentucky, where it descends 22½ feet in the course of two miles. Even over these, boats pass in high water. But they have been obviated by a canal around them, which admits of the passage of the largest steamboats. The current of the Ohio is very gentle; at the mean height of the river the current is about 3 miles an hour, at high water it is more, but at low water not more than two miles. During five or six weeks in the winter, the navigation is obstructed by floating ice. The Ohio and its tributaries have not less than 5,000 miles of navigable waters. The following distances have been derived from the Western Pilot, and are doubtless correct. From Pittsburg to Steubenville, O., is 70 miles; to Wheeling, Va., 92 miles; to Marietta, O., 174 miles; to Gallipolis, O., 264½ miles; to Portsmouth, O., 349 miles; to Maysville, Ky., 397 miles; to Cincinnati, O., 455½ miles. to Lawrenceburg, Ia., 479½ miles; to Louisville, Ky., 587 m.; to New Albany, Ia., 591 miles; to the mouth of the Cumberland river, Ky., 900 m.; mouth of Tennessee river, Kentucky, 911½ miles; mouth of Ohio, 959 miles.

The free and uninterrupted navigation of these great inland waters must of course be a matter of prime interest to the country. They are to the populous nations on their banks as the ocean itself, over which commerce and not kings preside. No construction of State powers as contra-distinguished from federal, can exclude these arteries of trade

from the pale of government regard and protection. They are points of national concern. No State or alliance of States can apply the remedies which their exigences require. No narrowed views of economy and retrenchment, no prospective expenditure, however vast, could be allowed to deter the legislature of the Union from approaching the solemn act of duty which is involved here.

We have not space at this moment to advert to the various schemes which have been presented and urged for the improvement of this western navigation, but shall be happy on some other occasion to do so. The remaining sheets of our paper will be rather occupied with some reflections upon the "Passes of the Mississippi," which conduct its great waters into the gulf, the proposed methods of improving their depth and navigation and of securing safety to the immense shipping seeking outlet and egress here.

The mouths of the Mississippi have been undergoing incessant changes so far as our records extend, and we might add, so far as the history of the river can be traced. Old channels have been filling up and new ones forming; at the same time that a continued sedimentary deposit has forced the delta itself constantly to encroach upon the sea. The depth of water afforded in these channels has never been equal to the requisitions of commerce, and it is only by dint of the most enormous application of steam power, and ploughing through deep beds of sand that the largest class of ships are enabled to navigate the channel. Considerable expense is always incurred in this manner, and delays prejudicial to trade. We have known of a ship, the *Coromandel*, in one instance, grounded in the Pass thirty-nine days. Could it be expected otherwise than that these impediments should be greatly detrimental to the interests of the whole valley having this common outlet?

In 1720, of all the Passes, the *south* one only was in use. A Report amongst the French Colonial Records, now in Paris, of date about 1730, gives the depth from ten to twelve feet on the bars, varying each year according to the violence of the winds, etc. Another Report by M. Paria gives a depth of seventeen feet to one of the Passes which had hitherto been but twelve feet only, and argues that twenty-two feet might be ensured by dregs. The employment of two vessels three months in the year, was tried during a portion of this time by the West India Company, but it worked badly. "A *flute* was then placed inside of the bar and sunk into eighteen feet by means of wells built for that purpose, inside such vessel and filled up with water. This vessel was placed close to the bank of the bar for the purpose of receiving the cargoes of vessels that could not cross. It was soon per-

ceived that the flute, receiving the whole power of the current, was forcing a passage of twenty-five feet through the Pass. The whole matter was immediately communicated to government.”*

Examined before the Committee on Commerce of the Legislature, in March, 1846, William D. Talbot, a resident of the Balize for twenty-five years, used the following language :

“The bars at the various Passes change very often. The channels sometimes change two or three times in a season. Occasionally one gale of wind will change the channel. The bars make to seaward every year. The South-west Pass is now the main outlet. It has been so for only three years, as at that time there was as much water in the North-east Pass as in it. The South-east Pass was the main ship channel twenty years ago—there is only about six feet water in that Pass now, and where it was deepest then there is only a few inches of water at this time. The visible shores of the river have made out into the Gulf two or three miles within his memory. Besides the deposit of mud and sand, which form the bars, there frequently arise bumps or mounds near the channel, which divert its course. These bumps are supposed to be the production of salt springs, and sometimes are formed in a very few days. They sometimes rise four or five feet above the surface of the water. He knew one instance, when some brick that were thrown overboard from a vessel outside the bar, in three fathoms water, were raised above the surface by one of these banks, and were taken to the Balize and used in building chimneys. In another instance, an anchor which was lost from a vessel, was lifted out of the water, so that it was taken ashore. About twenty years ago a sloop, used as a lighter, was lost outside the bar in a gale of wind; several years afterwards she was raised by one of these strange formations, and her cargo was taken out of her.”

Lieut. Poole, of the United States Engineers, in his Report of Feb. 8, 1847, remarks, “great changes have taken place in the last fifteen years in this (the South-east) and the North-east Pass, which has been deepening while this has been filling up.” It is stated where the island shown upon sheet No. 3 now is, there was at that period six fathoms water. The process seems to be still going on. The space between this island and Antonio being nearly covered by a shoal the centre of which is already above water. During a few days that two ships were lying aground on the middle bank of the South-west Pass, in eight feet water, a channel formed between them through which a ship of *sixteen feet draught* passed out without obstruction!*

The project of deepening or improving these outlets has been for a long time before the General Government, and special reports upon the subject prepared by the engineer service after extended surveys.

Three methods have been principally insisted upon with different degrees of merit and expense :

- 1st. To deepen by dredging machines one or two of the Passes.
 - 2nd. To close up all but one of them where they leave the river trunk.
 - 3rd. To cut a canal from the river to the gulf.
- All of these are regarded practicable. Supposing the first and

* See Analysis of French Documents in vol. I. Commercial Review.

second adopted together, Capt. Chase estimates the expense as follows to give sufficient depth of water :

Dredging N. E. Pass,	-	-	-	-	\$160,000
Do. S. W. Pass,	-	-	-	-	210,000
					<hr/>
					\$370,000

with an annual subsequent expenditure of \$72,000 more.

Closing the Passes,	-	-	-	-	\$214,500
Jette at N. E. Pass,	-	-	-	-	100,000
Jette at S. W.,	-	-	-	-	182,500
Contingencies, &c.,	-	-	-	-	30,000
					<hr/>
					\$527,000

The line of the ship canal is proposed from a point two and a quarter miles below Fort Jackson, and extending seven miles to the shore of the Gulf, and thence by a jette, 1760 yards to 30 feet water. The canal to be 100 feet wide at top, and thirty feet deep. The cost of this magnificent work is estimated thus:—

For the lock and guard work,	-	-	-	\$ 300,000
For trunk of the Canal,	-	-	-	2,669,333
Jettes and Breakwater,	-	-	-	2,463,996
Channel between,	-	-	-	3,420,000
Contingencies,	-	-	-	1,146,671
				<hr/>
				\$10,000,000

Whether this amount be held too vast for an annual commerce departing or entering the river now of \$100,000,000, is a question we shall not take time to solve. Of the practicability of such a canal there can be no doubt. If we are content to leave unimproved the channel of the river, private enterprize will find a harbor for our commerce at some other point than the levee of New Orleans. Ship Island may afford such a one for the heaviest tonnage, and a railroad locomotive be substituted for the laborious "tow."

The subject of pilotage over the bars of the river, has for a long time excited deserved interest in Louisiana and also in contiguous States. A history of this question would not be out of place here, particularly as from late developments it would hardly seem to be settled.

At the cession of Louisiana to the United States, a monopoly of the pilotage was in the hands of one Ronquile, appointed under the Spanish crown. This man was succeeded by two others who bought out his establishment and amassed a fortune in the course of a few years. The duties of these pilots were performed by deputies, common sailors picked up in the city, and the fees allowed were two dollars a foot with certain other perquisites.

The law of 1805 empowered the governor to appoint two or more

sufficient persons to be branch pilots. Unlimited competition was the result. The master and wardens of New Orleans were constituted a board of examination for pilots.

The Act of 1837, now of force, introduced a revolution in the system. The governor appoints under it not exceeding fifty branch pilots, who are to be citizens of the United States, and have resided two years in Louisiana; examined by a board of examiners, and recommended by it to the master and wardens of New Orleans, and by them to the Executive. This board of examiners to be from the pilots themselves, and consist of three members. Each pilot to give bond in the sum of one thousand dollars. Deputy pilots are forbidden, and none but a branch pilot shall conduct the business. The rate of pilotage upon all vessels indiscriminately, is fixed at \$3,50 per foot without other charge whatever.

Against this system a protest has been made by the New Orleans Chamber of Commerce, and a committee of the Legislature charged during last year with the subject, after severe investigation and examination of a large number of witnesses selected from the pilots, the ship and tow-boat captains, ship owners, and merchants, presented a report which lies before us upon the table.

The committee support the present system against those that preceded it or are proposed in its stead, and furnish a beautiful and graphic sketch of the country which has been redeemed under its influence, and of the domestic life and condition of those who are employed in the pilot service. We make no apology for a lengthened extract from the Report, which, taken together with the two engraved views we are enabled in the present number to present, will give no inadequate notion of the region known as the Balize in the beginning of the present century and now.

Your Committee have ascertained to their entire satisfaction, that every system that had ever been in force in this State, from the cession of Louisiana to the passage of the act of March 13th, 1837, had proved a total failure. Whether as regards the interests of commerce, the advancement of social order, or the behests of morals and civilization, they had one and all fallen short of the ends and purposes of their creation.

On this point your Committee have taken ample and unbroken testimony, without a dissenting voice. The whole evidence shows that, from the existence of the State as a portion of the confederacy, up to the year 1837, the pilot service was negligently performed, and more especially were the persons engaged in it, as a body, a desperate, worthless, reckless class of men. The Balize, during that period, was a scene of barbarous strife and drunken debauch.

Your Committee have been informed by witnesses of unblemished character, who have resided at the Balize, both before and after the passage of the act of 1837, that anterior to that law it was a mere mud bank, whose natural loathsomeness was made more intolerable by the beastly scenes enacted there. Riots and broils were daily exhibitions, and low revelry and debauches the pastimes of the night. It was a place dangerous to visit: the savageness of man invested the desolation of nature with ap-

palling attributes. The Balize is located upon the margin of the Mississippi, a short distance above the North-east Pass; in front the river flows sullenly; all around is a prairie overgrown with the rank luxuriance of the tropics; the waters of the gulf in daily tides cover the face of the earth round about, many miles; there is not a tree, nor a mound, nor a monument of any sort, unless placed there by the hand of man, to relieve a monotony that oppresses the beholder. The land itself is but a recent acquisition from the ocean, wrenched thence by the great father of rivers. This dreary and inhospitable vision, was the first that greeted the stranger approaching our shores from the seaward; and it is appalling to reflect, that the character of the people who dwelt there and held appointments from the State, was yet more savage than the scene that surrounded them, and impressed the mind with ideas of our national qualities, as gloomy as the opinions such a spectacle might inspire of the natural features of our country.

It was not surprising that your predecessors endeavored to remodel a system, or systems, under which the vestibule of the State was thronged by the worst description of men. Nor is there wanted a reason, why they, who approached our shores, to find themselves amid a class of men more dangerous than the deep they had escaped, made an outcry against the laws that encouraged or could not repress their outrages. Nor was it possible for a service, requiring sober, discreet and intelligent men, to be conducted properly by such as spent their lives in daily broils and midnight wassail.

The experiments to infuse respectability and character into the pilot service resulted in the act of the 13th March, 1837. The effect of that act, the committee will endeavor to explain in as brief a space as possible; and in this connection, they will also attempt to point out the peculiar provisions of the law which in their opinion have more than others, brought about the change that has been so beneficial and apparent.

Shortly after the passage of the act of 1837, the pilots selected under it formed themselves into an association for their better governance, and the more prompt and efficient discharge of their duties. It will be seen that the act provided that there should be no deputy pilots; every person in the association was, therefore, a full branch pilot, and the equal of his compeers. The immediate effect of this provision, was the elevation of the character of the pilots as men. There was no inequality between them—no superiors—no inferiors; every man who had heretofore occupied a subordinate sphere of life was raised in his own esteem. He was no longer a menial; his responsibilities were increased, and with it his dignity and self-respect.

The association was founded upon the broadest principles of equal rights. The business of the company was placed under the superintendence and control of a principal, and board of directors, or rather executive committee. The by-laws regulating these appointments made them elective by the pilots in commission, and so limited the periods of service, and arranged the terms of re-eligibility, as to secure to each, in his turn, a share in the administration of the affairs of the association. The salutary influences of this system were soon manifested, in a total change in the habits, manners and morals of the Balize; order succeeded confusion; soberness of living followed the scenes of riot and debauchery, before prevalent; and the growth of social amenities rooted out the wild and poisonous weeds which had sprung in that hot-bed of vice and profligacy.

Another change more remarkable, but perhaps equally natural, was wrought by the act, in the domestic relations of the pilots. It was a rare thing to see a married woman at the Balize, during the existence of the ancient systems, which were overthrown in 1837. Upon the disappearance of stews, lewd resorts and places of public drinking, more sedate and rational views of life supplanted the savage and guilty notions that had so long swayed the conduct of the pilots; and that provision of the law which made members of their own body a board of examiners, giving to them the right to select their own associates, and in a good measure to purge the Balize of the worthless characters who might otherwise infest it, emboldened them to take wives to themselves, and perfect the reform by adding the claims of domestic connections to the inducement to a well regulated social organization.

The change produced by these combined influences, upon the morals of the Balize, is scarcely credible. It has been snatched like a brand from the burning—a diviner spirit has breathed upon it—a more exalting appreciation of the duties of citizenship has possessed its inhabitants. They have become fathers of families; children have

grown up around them, whose prattle awakens other emotions than those that night revels and brawdy songs once stirred within them. Nor do they stop here. They have established a public school to educate these children for the duties of republicans. They have built up a reading room for the improvement of themselves as well. They have established a police there, too, to suppress disorder. The characteristics of the place are peace, order, progress. The abode of vice, lawlessness of profligacy, has been redeemed, and consecrated to the humanizing influences of the age—education, moral culture, and habits of industry, sobriety and economy.

The change in the physical features of the Balize is not greatly less obvious than in its moral qualities. A village of comfortable and convenient houses has sprung up like bright exhalations. A narrow strip of ground, fronting neat dwellings, has been wrested from the returning tides. By small additions, such as could be made in the intervals between the claim of duty, they have formed an embankment for the purposes of horticulture. The earth forming this artificial batture, has been taken from the depths of the river. It is the product of years of labor. Each residence has a parterre before it; and here the matrons of the Balize and their daughters spend their leisure in beautifying the blasted desolation of nature. A more imposing instance of the power of law, when exerted for the dignity of man—for his protection, for the conservative instincts of our species, can no where be found. That there should be now a well-ordered society in this once sink of iniquity; that domestic virtues should hallow the abode of profligacy; that children should be pointed the ways of wisdom, where yet a little while the stern and formed character of men could not resist the force of abasing example; that flowers should be taught to grow upon a waste, where lately a vertical sun and the waters of the ocean held alternate dominion; that religion, peace and order should reign over a spot cursed with inhospitalities, and terrible from the depravity of its inhabitants, is a triumph which the law may boast, which civilization may rejoice over, which the State may claim as all her own.

In the benefits of these ameliorations, commerce has also participated, for a more intelligent class of persons are brought to its assistance. It is in proof that the pilot service has been better conducted since 1837 than it ever was before—a proposition which scarcely required proof, unless it were doubtful whether sober, industrious, competent and respectable men are more capable of discharging responsible duties than sots and sea-loafers.

The following facts were elicited from witnesses in the course of examination before the Committee :—There are forty-seven pilots now enrolled. The full compliment of fifty has almost always been secured. A pilot boat is ever stationed at the South-west Pass, and cruizes southward and eastward; the South-west Pass came into use in 1830, previously the South-east was the main channel; four other boats cruize from the North-east Pass. Boats with five or six pilots remain at sea until they have all taken ships. The gulf coast is extensive and complicated; sun often seen only through fogs faintly for months at a time, pilots guide then by soundings and their knowledge of bottoms. The population of the BALIZE is 300 to 350. There are at the SOUTH-WEST PASS 60 or 70 more. Mortality from various causes very great. In eleven years seventy or eighty boat-keepers or pilots have been drowned, killed or have died. Within thirty-one years every man at the Balize has died,—every human being pilot or not pilot. The Association of Pilots have in their employ ten apprentices, receiving each from twenty-five to thirty dollars per month. The average annual distributable share of each pilot for the last six or seven years,

has been \$1,634 90. The salaries of towboat captains reach as high as \$2,000.

The evidence for the good order, faithfulness, decorum, and entire efficiency of the pilot service is unanimous. The Vice President of the Chamber of Commerce, W. L. Hodge, Esq., declared that he was not aware of any neglect, as represented in certain petitions, and that he had refused such petitions when presented to him. The objections of witnesses go to other matters,—to the constitution of the Board of Examiners, to the alleged monopoly and excessive rate of charges. The evidence on the last point is various. Some are for maintaining the system as it is, many for a very considerable reduction; nearly all would advocate a reduction on vessels drawing less than ten or twelve feet. The pilots themselves admit the propriety of this last reduction, and advocate it as being more beneficial to themselves as well as to trade. Doubtless the proper modification will be made.

The total expense of pilotage is estimated by Mr. Hodge as one-tenth of one per cent, on the whole commerce of the Mississippi with the sea. What it is in other cities we have no information, nor what it

* Major Stoddard who took possession of Louisiana for the United States in 1804, and resided five years afterwards in the State, makes these remarks upon the Balize.

"The Mississippi near its confluence with the sea is divided into five branches, and of course has its *embouchure* in the Gulf by means of five mouths. These are denominated the North East, South, South East, and South West Passes. They are from three to nine miles in length, and furnish a depth of water for the largest ships except upon the bars. The East Pass, called the Balize, has about seventeen feet of water on the bar, and is the one usually navigated. The South Pass was formerly of equal depth, but is now, 1805 or 1806, gradually filling up. The South West Pass has from 11 to 12 feet water. The North East and South East Passes are traversed only by small craft. On the south side of the East Pass, about three miles from the bar, is the pilot house, a framed look-out house, about sixty feet high, *where several men reside*. They make use of row boats, and seldom venture out to sea except in good weather."

The subjoined sketch, handed us by an old merchant, Maunsel White, Esq., may be regarded faithful, and agrees very nearly with the description of Major Stoddard



BALIZE IN 1804.

was under previous systems in Louisiana; but if the present number of pilots is necessary to conduct our commerce, and the evidence to the contrary is not sufficient; if these pilots must be permanently located far out from civilization, in the most inhospitable, cheerless, and desolate country imaginable; if homes and the rudest comforts of homes, are to be *created* there despite of the elements themselves, and every supply of physical wants must be had from markets a hundred miles away; if exposure and privation of all kinds must be endured, and no other revenue derived than \$1,600 a year to each family, when wages and salaries for all descriptions of labor are fifty to one hundred per cent. higher than in other places, we cannot yield easily to the conviction that the fortunes of these pilots of the Balize are much to be envied after all, and the commerce of the West likely to be materially affected by their exactions.

However, we have glided unwittingly into this subject, and would forbear. Let those settle who have vexed and mooted it and who are more interested, and may be better informed than ourselves. Either side is entitled to a fair hearing, and we have contented ourselves with the investigations which have been *officially* made. The point is convenient to terminate our article.

FOREIGN COMMERCE AND AGRICULTURE.

1.—RUSSIAN PRINCIPLES OF TRADE.

In a work written by Golovine, a Russian subject, and translated into English by Henry Colburn, we learn the state of things existing in this great Empire. The passage in relation to trade we give as of general interest in a historical point of view, though a more liberal protective system has since been substituted for the *prohibitory*.

“The Russian government merely confines itself to securing manufacturers against all foreign competition, which causes them to persevere in their apathy and incapacity. To protect three or four thousand Russian manufacturers, it imposes annoying privations and excessive expense on millions of consumers; and, in spite of this factitious protection, the Russian manufacturers cannot compete with those of other countries. The raw materials, workmanship, living, are five times as cheap in Russia as in England, and, notwithstanding this immense advantage, Russian manufactured goods are fifty and one hundred per cent. dearer than those of English production. Foreign manufacturers are not easily tempted to settle in Russia, though capitals there yield double and treble what they produce in other countries. The cause of this is the insecurity of property, the deplorable state of legislation and the judicial system, and the little consideration which persons engaged in the pursuits of industry enjoy either with the government or in the public opinion.”

2.—ENGLAND AND HER COLONIES.

From a late report of the Chamber of Commerce of Jamaica on the sugar duties question in England, as the same might effect the future cultivation in the British

West India Colonies, we make a few extracts; showing the opinions which prevail in relation to Colonial Empire, and the means of maintaining it.

"And so valuable were Colonies considered as elements for promoting the power and prosperity of the State, and sugar Colonies especially, that from the Earl of Chatham's time the policy has constantly been of a tendency to increase the Colonial Possessions of Great Britain, and to deprive other nations of theirs.

"Many circumstances concurred to render that policy eminently successful, and the stupendous Colonial Empire of Great Britain has never been equalled by any nation, whether ancient or modern.

"To that Empire Great Britain owes her present exalted station, and to that Empire must she look for its preservation, and for the preservation of the many advantages she possesses over other nations; and woe to her when through rejection of the blessings that have been showered upon her, she contemptuously casts from her the props of her greatness.

"The intercourse with her Colonies furnishes the means for rearing a numerous body of hardy and experienced seamen, always at hand to man their country's fleets, and assert her rights.

"But unless her Colonies are productive—unless they are stocked with inhabitants, by whose industry her merchant ships are loaded, and by whose expenditure her artisans and manufacturers are kept employed, how could the Colonies subserve to that paramount object—the contributing to the nurseries for seamen which merchant ships supply?

"Unless ships carry goods to the Colonies, and return loaded with their productions to the mother-country, Colonies would be worse than useless to her. Then, indeed, would it no longer be insane, if not treasonable, to decry the Colonies as clogs rather than as contributing to the nation's power and prosperity.

"But as it is undeniable that the Colonies have contributed, and always will contribute, largely towards maintaining the rank which the mother-country holds among nations, it scarcely required the stern rebuke of the Minister, who, to silence those short-sighted politicians that would depreciate their Colonies in the eyes of the British people, told them, that unless they were prepared to see the nation reduced to a second-rate Power, their Colonial Empire must be maintained.

"The value of the Colonies to Great Britain may be estimated by considering them—

"1st. As constituting naval stations and military posts in every part of the globe.

"2nd. As contributing to maintain her naval supremacy.

"3rd. As affording employment to her artisans and manufacturers, through their own consumption, and through the means they afford for promoting the sale of British goods to the foreign nations in their vicinity, especially during a period of war.

"4th. As the means by which the people of England have been regularly and abundantly supplied, as well with articles of the first necessity, as with those considered less so, but yet contributing greatly to the comfort and happiness of a people.

"5th. As preserving the British people, by such supply, from either depending wholly on foreigners for articles even of the first necessity, to obtain which they might eventually have to give gold, or be compelled to dispense with them, and consequently with those other articles which contribute to the comfort and happiness of man."

3.—TRADE OF THE BRITISH NORTH AMERICAN COLONIES.

In the August number of that valuable English work, "Simmonds' Colonial Magazine," we have a contrast exhibited of the respective progress made since 1784 by the British Colonies and the United States, which, it will be seen is much more favorable to the Colonies than could be supposed or easily credited, though the statistics of the United States, upon which it is founded, are not altogether correct.

"Now, these figures (collected carefully from the sources of information mentioned underneath, and from others) show that the increase of the Shipping of the North American Colonies since 1784 has been nearly tenfold, while that of the United States has been only fourfold; that the population of these Colonies, "the thews and sinews" of production and enterprise, has increased in the same period tenfold, while that of the United States has only increased threefold.

"Under the head of Imports, it is true that the United States have increased about forty-fold, and of Exports more than 120 fold—while we can only count an increase in the former of about nine, and in the latter of about seventeen times. But compare the range of Export and Import in the one case and the other. From 1784, to the present time, our neighbors have had the free range of the world, going and coming; while the Colonies, until comparatively a very recent period, were confined to the trade with the mother-country, and with the other Colonies; and even in the West India market they had to encounter the competition of the Americans, whose greater proximity and cheaper outfit gave them an advantage. Again, it is to be remembered, that in 1784, when the comparison begins, the Americans started in the world with double the population—four times the shipping, six times the import trade, and more than four times the export trade, than the Colonies then had; so that the ratio of increase was not only greater at the outset, but went on increasing by a kind of compound geometrical progression. And, lastly, there was, and is, this important difference and disadvantage to our North American Colonies, that their whole maritime coast line presented but three or four accessible ports suitable for commerce, and that Canada, the principal Colony, is win'er-locked six months in the year, while the whole American coast, from Machias to New Orleans, broken and indented with multiplied bays, harbours, rivers and inlets, is open at all seasons, studded long since with the populous seats of a busy commerce, which had planted itself as early as 1784 in at least ten of the principal positions it now holds."

4.—COTTON TRADE OF GREAT BRITAIN.—1806—1846.

IMPORTS OF COTTON INTO GREAT BRITAIN FOR 41 YEARS.

	1806.	1807.	1808.	1809.	1810.	1811.	1812.
American,	124,939	171,267	37,672	160,180	246,759	128,192	95,331
Brazil,	51,034	18,981	50,442	140,927	142,846	118,514	98,704
East India,	7,787	11,409	12,512	35,764	79,382	14,646	2,607
W. India, &c.	77,978	81,010	67,512	103,511	92,186	64,879	64,563
Packages,	261,738	282,667	168,138	440,382	561,173	326,231	261,205
	1813.	1814.	1815.	1816.	1817.	1818.	1819.
American,	37,720	48,853	203,051	166,077	199,669	207,580	205,161
Brazil,	137,168	150,930	91,055	123,450	114,518	162,499	125,415
East India,	1,429	13,048	22,357	30,670	120,202	247,653	184,259
W. India, &c.	73,210	74,800	52,840	49,235	44,872	50,991	31,300
Packages,	249,536	287,631	369,303	369,432	479,261	668,729	546,135
	1820.	1821.	1822.	1823.	1824.	1825.	1826.
American,	302,395	300,070	329,906	452,538	282,371	423,446	395,852
Brazil,	180,086	121,085	143,505	144,611	143,310	193,942	55,590
Egyptian,				5,624	38,022	111,023	47,261
East India,	57,923	30,095	19,263	38,393	50,851	60,484	64,699
W. India, &c.	31,247	40,428	40,770	27,632	25,537	31,988	18,188
Packages,	571,691	491,678	533,444	668,797	540,092	820,883	581,950
	1827.	1828.	1829.	1830.	1831.	1832.	1833.
American,	646,776	444,390	403,076	618,527	608,887	628,766	654,786
Brazil,	120,111	167,362	159,536	191,468	168,288	114,585	163,193
Egyptian,	22,450	32,889	24,739	14,752	38,124	41,183	3,893
East India,	73,738	84,855	80,489	35,019	76,764	109,298	94,698
W. India, &c.	30,988	20,956	18,867	11,721	1,304	8,490	13,646
Packages,	894,063	749,552	746,707	871,487	903,367	902,322	930,216
	1834.	1835.	1836.	1837.	1838.	1839.	1840.
American,	733,528	763,199	764,707	844,812	1,124,800	814,500	1,237,500
Brazil,	103,646	143,572	148,715	117,005	137,500	99,300	85,300
Egyptian,	7,277	43,721	34,953	41,193	29,700	33,500	38,000
East India,	89,098	117,965	219,493	145,174	107,200	132,900	216,400
W. Ind, &c.	17,485	22,796	33,506	27,791	29,400	36,000	22,300
Packages,	951,034	1,091,253	1,201,374	1,175,975	1,428,600	1,116,200	1,599,500

	1841.	1842.	1843.	1844.	1845.	1846.
American,	902,500	1,013,400	1,396,800	1,246,900	1,499,600	932,000
Brazil,	94,300	87,100	98,700	112,900	110,200	84,000
Egyptian,	40,700	19,600	48,400	66,700	82,000	59,600
East India,	273,600	255,500	182,100	237,600	155,100	49,500
W. India, &c.	32,900	17,300	17,700	17,500	8,800	9,000
Packages,	1,344,000	1,392,900	1,744,100	1,681,600	1,855,700	1,134,100

5.—COMMERCIAL CHARACTER OF THE CHINESE.

From the lecture delivered in New York by Mr. Williams, we learn that the Chinese are the greatest traders in Asia. The tonnage upon their waters is greater than in all the world besides. In one view, before a single city, 175,000 ton of craft have been seen at a time. Opposite Pekin is a tier of three miles of boats, and 140,000 tons; before Canton there are 80,000 tons. The main traffic is in provisions. Taxes are paid on them; and for their transport the great canal was built. Imports are free of duty; but excise is collected all along the rivers, generally moderate, and little evaded. The ports were thrown open a hundred years ago, but, on the death of the Emperor, closed again. The foreign trade of Canton is conducted in the English language. In that city 4,000 persons speak it—learned by rote. Five-sixths of the exports are in teas, &c., &c. The other articles, raw and manufactured silks, cassia, sugar, alum, carved and lacquered ware, matting, camphor, drugs, vermilion, crockery, fans and sundries. Export of bullion nearly equal to that of tea. It is supposed that ninety-five millions of dollars have been drained from the Empire: twenty-one millions for the treaty with England, six millions for the ransom of Canton, and the remainder for opium.

The imports are cotton, opium woollen and cotton flannels, lead, iron, tin, cuttlery, ginseng, watches, pearls, birds' nests, biche-de-mer, betel nut, rattans, furs, rice, dyewoods and sundries. Cotton and opium are the principal. The demand for coarse cotton goods is fast increasing. They have a bounty upon the importation of rice. The total import and export trade of China is equal to one hundred and twenty millions of dollars, two-thirds of which is carried on by the English. The import of pearls is estimated at about one-third of a million of dollars. The trade is principally in the hands of the Parsees, descendants of the ancient Guebres of Persia. Rattans are again exported in the form of baskets, &c. Glassware, mirrors, Prussian blue, red and white lead, clocks, brass ware and bronze ware they make.

6.—MEXICAN AGRICULTURE—COHAUILA.

The Province of Cohahuila bounds on the South bank of the Rio Grande. As it is not improbable that in the settlement of Mexican difficulties this Province may be included in our territory, we furnish a few particulars from a late writer in that country. The products are corn, sugar and cotton. The last may be profitably grown. Sugar promises well. The inhabitants run the syrup into moulds, without graining it. Two crops of corn are raised in a year; grows to a great height, and yields easily over 50 bushels to the acre. Wheat is profitably cultivated. Oats and rye are not grown in Mexico. All descriptions of vegetables grow well. Oranges are abundant, but sour. The agricultural implements used in Mexico are of the rudest possible fashion; the ploughs similar to those used by the Romans, two thousand years ago; efforts to introduce those from the United States have not succeeded. The stone corn-mill is identical with that used by the Indians at the conquest. Every other article of husbandry is on a par. How is this fine region blessed in all things but in men.

AMERICAN COMMERCE.

I.—TARIFF FOR AMERICO-MEXICAN PORTS.

The President of the United States has proclaimed tariff of duties over all the ports conquered by our arms in the present Mexican war. The ports on the Gulf of Mexico, as well as on the Pacific, are thrown open to all nations, except Mexico. Vessels entering, to have manifest of cargo, under penalty. Tonnage duty of \$1

per ton. American vessels only to conduct the coasting trade, paying, however, the regular duties. The following goods are contraband—powder, gun-cotton, saltpetre, lead, sulphur, brimstone, cannon, swords, and all other implements of war; steel in every form, except in bars of less than one inch square. Goods brought into the United States, from any ports or places in Mexico, chargeable with duty in the United States; but no drawback allowed on exports from any such Mexican ports.

We will take some other occasion to publish the particulars of this tariff, which would occupy more space than we can command now. It will, doubtless, influence great trade in that quarter, and although much criticised in many particulars, we doubt whether it is not as good as any which could have been prepared under the circumstances—taking it all in all. To levy contributions thus upon the enemy is a wise policy. So "King Commerce" promotes the empire of peace, and mitigates the savage ferocities of war.

2.—DISASTERS AT SEA—1846.

The Sailors' Magazine is authority for the following Catalogue of Shipwrecks during 1846, principally on our coast.

	AMERICAN.	BRITISH.	FRENCH.	ALL OTHER.	TOTAL.
Ships,	28	27	1	8	64
Barks,	18	28	5	10	61
Brigs,	73	29	1	25	129
Schooners,	168	17		9	194
Sloops,	17			16	33
Steamers,	6			3	9
	310	101	7	71	490

Number of lives lost by these—535. Twenty-seven vessels still missing.

3.—PORTS OF ENTRY IN THE WEST.

The act of Congress, 1831, allowed goods imported into Wheeling, Cincinnati, Pittsburgh, Louisville, St. Louis, Nashville and Natchez, duties being secured and paid at those places, on due entries of the goods at New Orleans. Since the adoption of the Warehousing Bill, the Secretary of the Treasury has adopted the following important regulations:

"First All merchandise imported directly from any foreign port via New Orleans, and destined for St. Louis, or either of the other ports enumerated in the act of 2d of March, 1831 must, in pursuance of this act, be entered, and the duties ascertained and bonded for, at New Orleans. Such merchandise, however, need not be requested to be actually deposited in warehouse at New Orleans, but may, on permit being granted by the Collector and Naval Officer of said port, be laden on board of a steamboat or other vessel, destined for either of the ports mentioned in the act of 2d March, 1831, and be landed and warehoused thereat.

"Second. In pursuance of regulations applicable specially to the ports referred to, heretofore established, bonds to secure said duties may be executed by the importers of goods residing at either of the ports in question, in anticipation of the arrival at New Orleans of any goods ordered from a foreign port, and transmitted with proper schedules of said goods to the Collector of the Port aforesaid, who will certify on said bonds the amount of duties ascertained at New Orleans to be payable on said imports. These bonds must be transmitted by the Collector to the Surveyor of the Port for which the goods may be destined, to be retained in the possession of said Surveyor as security for the duties on said goods while in warehouse, and to be paid and cancelled when the goods shall have been duly entered for consumption."

4.—BANKING SYSTEM OF THE UNITED STATES.

In 1832 the Secretary of the Treasury was requested to report to Congress such information within his reach as related to the Banking System of the Union. The Secretaries, during the remainder of Gen. Jackson's administration and Mr. Van Buren's, complied with the requisition. It afterwards lay dormant, until revived by Mr. Walker, the present year.

BANKS OF THE UNITED STATES.

	Circulation.	Deposites.	Total.
1830	\$61,323,898	\$55,559,928	\$116,889,826
1834	94,819,570	75,666,986	170,506,556
1835	303,692,495	83,081,365	186,773,860
1836	140,301,038	115,104,470	255,405,478
1837	149,186,890	127,397,185	276,583,075
1838	116,138,910	84,691,184	200,830,094
1839	135,170,995	93,240,146	225,414,141
1840	116,572,790	76,573,582	193,146,372
1841	167,290,214	64,890,101	172,180,345
1842	83,734,011	62,408,870	146,142,881
1843	58,563,608	56,168,623	114,732,231
1844	75,167,646	84,550,785	159,718,431
1845	89,608,711	88,020,646	177,629,357

According to Returns nearest to January 1.

	1843.	1845.	1847.
Number of banks making returns,	577	580	591
Number of branches,	114	127	124
Whole number of Banks and branches,	691	707	
Capital paid in,	\$228,861,948	206,045,969	203,070,622
Resources—			
Loans and discounts,	254,544,937	288,647,131	310,282,945
Stocks,	38,380,050	20,356,070	20,150,000
Real Estate,	22,826,807	22,177,270	21,219,865
Other Investments,	13,343,599	10,082,466	12,206,112
Due by other banks,	20,666,264	29,619,272	31,788,641
Notes of other banks,	13,306,617	12,040,760	13,112,467
Specie Funds,	6,578,375	6,786,026	13,789,780
Specie,	33,515,806	44,241,142	35,132,516
LIABILITIES—			
Circulation,	58,563,608	89,608,711	105,519,766
Deposites,	56,168,623	88,020,646	91,792,533
Due to other banks,	21,456,523	26,337,440	28,539,889
Other Liabilities,	7,357,033	5,853,902	4,706,077
Aggregate of Circulation and Deposites,	114,732,231	177,629,357	
Aggregate of Immediate Liabilities,	135,188,754	203,966,797	
Aggregate of Immediate Means,	74,067,062	92,687,300	

REGULATIONS POST OFFICE, MARCH, 1847.

A deputy postmaster may frank two ounce letters, if on post office business, and so marked. Postmasters whose salaries are under \$200, may frank or receive free *private letters* under half ounce. Members' Congress privileges extend from 30 days before to 30 days after session, as to letters under two ounces, and public documents under three pounds. Vice President, Secretaries Senate, and House, have similar privileges during office. Newspapers not sent from publisher's office, printed circulars, &c., to pre-pay three cents postage. Letters to different persons, if in same envelope, incur penalty of \$10 except directed to foreign countries. Letters under an ounce to the army in Mexico, free during the war. Postmasters cannot receive more than \$2,000 for box rents. Commissions for postmasters from 40 to 12½ per cent. on amount received at their offices.

SOUTHERN AGRICULTURE.

1.—THE SUGAR CROP OF LOUISIANA, ETC.

The COMMERCIAL REVIEW has spared no pains in the collection of information from all sources upon sugar; important to the planter, and the legislator. It is one of the great aims of this work, and as such we may be allowed to say, should commend it

to every planter in this State as well as in Texas. It was stated to us a hundred times over by the most intelligent planters from all directions at the Baton Rouge Agricultural Convention, that our article by Mr. Benjamin, had added immensely to the wealth of Louisiana. We were cheered on all sides by these marks of favor. One gentleman declared that by the study of that article he would realize several thousand dollars himself. Surely with such endeavors we have a right to claim the support of the whole planting interest.

Our labors for the future will be more systematic in this direction. The present paper upon "Sugar Manufacture" by Mr. Stone, in our pages, will open new views, and such are our arrangements that in every number of the work the present year there will be new, interesting and valuable matter upon the subject, viewed in every possible point of view. There are hundreds of sugar planters whose names are not yet upon our books. Shall this be so? We ask those of our subscribers if it shall?

But to the point before us. We have spoken before of the reduced sugar crop of Louisiana the present year. The crop of East Baton Rouge is estimated at 4222 against 4474 last year; of Iberville, 7800 against 13,810; Point Coupee, 2199 against 1206; Ascension, 4114 against 8927; St. James, 6263 against 9764; St. John, 2048 against 4690; St. Charles, 3511 against 5973; Jefferson, 2961 against 5358; West Baton Rouge 5928 against 4961. We have already given several other parishes.

One thing, too, our statistics show the rapid increase of new estates, viz., in West Baton Rouge 15; East Baton Rouge 5; Iberville, 16; Point Coupee, 14; Ascension 4; St. James, 2; St. John, 1; Jefferson, 3; all in the period of one year. Will gentlemen in the other parishes complete our statistics?

A pamphlet quoted in the New York Courier and Enquirer estimates the sugar crop of the world in 1847, being greatly too high for Louisiana, thus:

	Tons.
British West Indies,	140,000
Maritimus,	50,000
Bengal, etc.,	80,000
French Colonies,	80,000
Dutch and Danish West Indies,	25,000
Cuba and Porto Rico,	200,000
Java,	95,000
Siam, Manilla, China, etc.,	30,000
Brazil,	100,000
Louisiana,	100,000
Beet Root,	85,006
Total in tons,	1,045,000

Largest previous crop, 900,000 tons.

2.—OUR GREAT STAPLE—COTTON.

A friend in Mobile, George G. Henry, Esq., sends us a copy of the Register and Journal, containing a valuable contribution upon the subject of "Cotton," from the pen of *A Merchant*. Whoever this Merchant is, we should be glad to have him occasionally grace our pages. At present we analyze his views.

The wealth of Great Britain is boundless, and her capacities as a purchaser. Her people have lent to government £800,000,000 at an interest now of about one and a half per cent. They subscribed for £100,000,000 in railroad stock. Their agricultural product is estimated at £227,771,548; mineral, £27,000,000; manufacturing, greatly over £131,750,000, £35,000,000 being of cotton. The commerce of Great Britain reaches in exports, £145,725,865, and in imports £73,547,788.

The British demand for cotton is of stern necessity; it clothes and employs millions of her people, and strengthens government itself. The stock on hand there January, 1837, was 546,000 bales. She can receive from the Indies, Brazil, etc., etc., not more than 260,000 bales; the receipts thence last year being 252,000 bales, declining yearly. The supply of the United States in 1847 cannot exceed 1,827,000 bales, including 93,000 of old stock. Of this supply there will be consumed at home 475,000 bales; in 1846 it was 442,597, greatly increasing. In France and on the continent, 700,000 bales. There had been shipped and received on board before January, 1847, 82,000 bales of this crop and of old stock. The amount of these several items is 135,500 bales, which deducted from total supply, will leave for British purchasers from us 520,000 bales, (they took in 1845, 1,499,594 bales,) and for Bri-

tish manufacturers but 1,326,000 bales from all sources whatever.—They consumed in 1845, 1,574,304 bales.

In estimating the crop at 1,730,000 bales, 700,000 being given to New Orleans against 1,037,194 last year; 310,000 to Mobile against 421,966; 130,000 to Florida against 141,184; Atlantic States, 590,000 against 490,000. This diminished crop is the result of, first, low prices and diversion of capital to other pursuits; second, internal improvement; third, emigration to Texas to raise grain and stock; fourth, conversion of cotton into sugar lands in Louisiana; fifth, reduced productiveness of cotton lands; to which might have been added destruction by worms.

Having dismissed our Mobile Merchant, it is not inappropriate to fill the rest of our page with a few facts in the history of cotton, referring our readers to a full and elaborate paper by ourselves in the Commercial Review for April, 1846. The cotton plant was introduced into the United States about 1770: previous imports from East Indies. There are about fifty varieties; four or five principally in use. Green seed first introduced; second, Bourbon; third, the Sea Island, from Bahamas; fourth, Mexican. Cotton is much influenced by climate, and will degenerate or improve.

"Until 1826" says an authority "South Carolina was the largest cotton growing State. Subsequently Georgia took the lead, till 1840, when Mississippi became the largest cotton growing State in the Union, producing no less than 193,000,000 of pounds. Georgia stood next, and yielded 163,000,000. Louisiana came in third, and raised 152½ millions. Alabama stood fourth, and raised 117,000,000. South Carolina, from having been the first, came in as fifth, and produced 61½ millions. North Carolina as seventh, and raised 52,000,000. Tennessee as the eighth, and raised 27½ millions. Florida came in ninth, and produced 12,000,000. Arkansas as tenth, and produced 6,000,000. Maryland as eleventh, and raised 5,000,000. Virginia as twelfth, and made 3,000,000. Missouri made 691,000 pounds. Illinois 121,000 pounds, and Kentucky 2,000 pounds. Since the annexation of Texas, her exports have been included in those of the United States."

PRICES FAIR UPLAND COTTON IN LIVERPOOL.			
1814, average	. 28d.	1825, average,	. 11½d.
1815, "	. 20½	1826, "	. 6½
1816, "	. 18½	1827, "	. 6½
1817, "	. 20	1828, "	. 6½
1818, "	. 20	1829, "	. 5½
1819, "	. 18½	1830, "	. 6½
1820, "	. 11½	1831, "	. 5½
1821, "	. 9½	1832, "	. 6½
1822, "	. 8½	Nov. 1, 1833, .	8½ to 8½
1823, "	. 8½	Dec. 11, 1846, .	5½ " 7
1824, "	. 8½	Dec. 24, 1846, .	5½ " 7½

3.—SOUTHERN ENTERPRIZE.—SILK.

T. H. Chivers, of Georgia has invented what he entitles a "Throwing Mill," for winding silk from the cocoons, spinning it into thread, doubling and twisting it, all at the same time, a thing hitherto regarded impossible, and so proclaimed by M. d'Homergue, whose book on the culture of silk was published in the United States by order of Congress in 1830. The inventor of this curious instrument remarks:—

"As sewing silk is the *ne plus ultra* of the silk business, or, in other words, as the making of sewing silk is the *perfection* of silk, such a machine will prove of infinite value to the State of Georgia. This machine is portable, and can be managed by any one possessing the least mechanical ingenuity. The expense of each mill will be from twenty-five to fifty dollars, perhaps less. I have not yet ascertained what it will cost to have one built, as the one which I invented I made with my own hands, every part of it

He adds, there is no part of the world better adapted to raising silk than Georgia. He has himself a million of eggs for the season. In 1766 the State sent 20,000 lbs. of raw silk to England. The United States imports \$15,000,000 a year in silk.

The subject of silk culture and manufacture is one that shall receive particular attention by the Review hereafter. We are in expectation of an elaborate and able article on the subject by a gentleman of New York of extensive practical acquaintance with it, and the Hon. E. Barke of the Patent Office, has in a spirit of courtesy and great public spirit, tendered whatever information his office affords, now very considerable, in the preparation of the article.

4.—THE COTTON CULTURE.

A thousand theories are given about the caterpillar, and fanciful modes of expelling them proposed. We gave one in our last number, about applying fire, not that we considered it practicable or founded upon correct basis, but only to show what a variety of views are advocated. We notice a review of these in a Baton Rouge paper, from Philip Winfree, which is highly complimentary to ourselves and to our valuable contributor, Mr. Abbey of Mississippi, whose articles have been copied all over the South. The writer has some interesting passages. What he says about resting soils is worthy of notice:—

"All lands ought to be rested, or the articles cultivated ought to be changed. No land will bear cultivation, *ad infinitum*, of the same plant. I have manured perhaps more than any cotton planter in the State, and the cheapest and best mode of manuring and retrieving I have found, was to plant and cultivate a crop of Guinea corn, (a grain very similar to the Egyptian corn,) and to throw out the ground for twelve months, allowing stalks, blades, and roots to rot on the ground. Of these there will be a large quantity which will not enrich the land, but add considerably to the quantum of the soil, a circumstance that ought to be attended to, for flat as our grounds are, they wash a good deal while under cultivation. The crop made will be large, and more valuable than Indian corn for feeding to horses, oxen, or poultry. The year after the ground is thus fallowed, it will be in fine order for Indian corn, cotton, sugar cane, or anything else.

AMERICAN STATES AND CITIES.

1.—THE RESOURCES OF ARKANSAS.

It would please us to be better informed in relation to this prosperous country. It is rich in mineral productions of iron, coal, gypsum, and salt, and is well adapted to cattle raising. In the eastern parts, the climate is regarded unhealthy, but genial in the middle and western parts. It was made a Territory in 1819, and a State in 1836. Population in 1840, 97,544, probably now 150,000. A late Arkansas paper remarks:—

"A glance at the map will show that the means of communication to every portion of our State, afforded by the Mississippi on the east, the Red River on the south, and the Arkansas, White, St. Francis, and Ouachita, which, with their numerous tributaries, extend in almost every direction within her territory, give her facilities for the transportation of her produce which are not to be equalled in any other State in the Union. Her mineral resources are incalculable, and the discoveries which are daily being made must soon attract the attention of capitalists. One item of information in relation to the discovery of gold in White county, has come to our knowledge within a few days. A gentleman brought into town a short time since some specimens of the ore, from one pound of which twenty-five grains of pure metal were extracted by the simple process of fusion. The iron trade is destined, at some future day, to occupy a prominent place in the industrial pursuits of our citizens. Inexhaustible quantities of this mineral are found in almost every portion of our State, and many of the deposits are of the finest quality in the world, yielding on analysis, ninety per cent. of the pure metal. Coal is abundant. At the junction of the Petit Jean with the Arkansas, near the bank of the first named river, are very extensive coal hills, where, with the expenditure of a small amount of capital, a large and lucrative trade in the mineral might be commenced. A large bed of fine coal was discovered a few days since, on the Ouachita, near Rockport.

2.—COMMERCE OF WILMINGTON, N. C.

Wilmington is a point of some interest, being that of steamboat connection with Charleston in the conduction of the great mail service of the North and South. It is situated on the East side of Cape Fear River, thirty-five miles from the Ocean, and is the most populous city in North Carolina. Its population was in 1840, 4,744. The harbor admits vessels of 300 tons, but is obstructed by shoals. It is surrounded by rice lands.

The commerce of Wilmington, according to the "Commercial," amounts to about \$2,500,000, within three-fourths of a million of the whole banking capital of the State.

TABLE OF EXPORTS, WILMINGTON, March, 1846, to March, 1847.

Spirits turpentine	-	56,199 bbls.	Rice	-	-	2,489 casks
Raw	-	22,741	Rough Rice	-	-	73,810 bush.
Rosin	-	131,573	Pea Nuts	-	-	38,300 bush.
Tar	-	27,908	Cotton	-	-	3,689 bales
Pitch	-	5,005	Yarn	-	-	2,568 bales
Timber	-	1,069,059 feet	Sheeting	-	-	2,492 "
S. S. Lumber	-	24,752,655	Rags	-	-	246 "
River "	-	4,002,814	Feathers	-	-	48 "
Shingles	-	5,552,900	Tobacco	-	-	280 hhds.
Staves	-	310,700	Beeswax	-	-	91 "
			Silver Ore,	268	pigs.	

3.—NORTH CAROLINA.—Gov. Graham, Nov. 1846, gives the following in relation to the landed property of the State: "In the year 1815 the aggregate value of the lands of the State assessed for taxation under the law of Congress, was \$53,521,513. But in the year 1836 the whole quantity of land listed for taxation, was valued at only \$39,136,108. To correct this criminal delinquency in enlistment and valuation, the Act of 1836 directed a new assessment of lands and improvements, by means of which the same subjects of taxation in the next year was raised in value to \$51,021,317. This valuation, is, however, defective, since it falls two and a half millions of dollars below that of 1815, although more than a million and a half of acres of land had been patented in that time.

SOUTH CAROLINA.—The total indebtedness of this State on the 30th September, 1845, was \$3,235,502 31, which has been somewhat reduced since that period, according to the last message of Governor Aikin.

5.—THE CITY OF GALENA.

We must so dignify already this remarkable town. It was first settled in 1828, and is about three miles from the Mississippi, on a little stream called the Fever or Bean River. The town was laid out in 1829. It increased with great rapidity, according to Bradford; miners pressed in from all sides, and it became at once the metropolis of the lead region. It is on the side of a steep hill and contains two streets parallel with the river. The foundations of the houses on the second being on a level with the roofs of the first. The lower street always presents the appearance of a large and thronged city. It exports more than any other point on the Mississippi, above St. Louis, and is likely to be the capital of that romantic north-west region. Its lead export has increased from 463,400 in 1841, to 672,420 pigs, 1846, being worth about \$2,225,000. Export of copper about \$22,000, lumber \$100,000, hides, \$14,000, wheat, 150,000 bushels; flour sold in Galena, 1845, 10,000 barrels. In 1844 there were 308 steamboat arrivals of 53,900 tons, in 1846, 333 of 58,275 tons.

6.—MERCHANTS' EXCHANGE AND MERCHANTS' ASSOCIATION, CINCINNATI.

We take the following from a most interesting report published and forwarded to us by one of the members. We should be delighted to have more particulars. Our friends in Cincinnati are far in advance of their neighbors in New Orleans. Enterprise, however, stays northward.

"The collection of commercial statistics was deemed second only in importance to the establishment of hours of 'Change, and has abundantly justified the continuance of this department. Careful registers have been kept of the imports and exports to and from the city by the river, canals, and railroad; of the arrival and departure of steamboats; of the markets, for demand and supply; of arrivals at the principal hotels, etc.; all of which has been constantly accessible to the examination of subscribers, and furnished an abstract from the Exchange books to each of the daily papers. The Exchange Department in this Association has been considered the nucleus only of a future and permanent Merchants' Exchange, and as such has received the fostering care of the successive boards of directors. Its organization has from year to year been maintained at the expense of no small degree of watchfulness and personal exertion, and it had at the time of its transfer accumulated a mass of statistical information, invaluable as the basis of safe and accurate tables of the laws of trade, and a proper

appreciation of the growing commerce of the city. The publication of these statistics, while it served the legitimate purpose of the Exchange establishment, has re-acted favorably on the general prosperity, and to the certain knowledge of the Directory, has awakened and attracted attention abroad to the extraordinary commercial advantages concentrating in Cincinnati."

INTERNAL IMPROVEMENTS.

1.—SOUTHERN RAILROADS IN PROJECTION.

It is our intention to keep a regular record of these. A public meeting has been held at Pensacola to connect that town with Montgomery, the future capital of Alabama, and thus draw in that direction to the gulf an immense trade. The cost of such a road is estimated at two millions of dollars. In our last number we gave some particulars of Pensacola; at this moment we have nothing definite about Montgomery.

The citizens of Charleston are about appointing delegates to a convention in North Carolina for constructing a railroad from Wilmington to some point of the Charleston and Augusta railroad. This is much talked of, and is the only link now wanted in the great chain of northern and southern roads. The distance would be about one hundred and forty miles over a level country. Such a road would prove very profitable.

Whilst upon the subject of southern railroads, let us not fail to pay a tribute to the high and distinguished services of Col. Gadsden, of South Carolina. He has been the life of all these movements, and their pioneer. With extraordinary practical ability and indomitable perseverance, his services can never be estimated too high. Devoted to the cause of the State and of the South, he is ever ready to sacrifice himself in their service. We remember him at Memphis, as the centre of great interest and attention. He was singled out by general consent, and with one voice, as the man of action and ability, and placed in the most important posts, which he did not solicit. His was not a visit of pleasure, but of unremitting toil by day and by night, through the sittings of the Convention. It was impossible, even in that great crowd, not to single out and admire the man.

However, it is not our wont to be personal, and we were only led into this fault now by reading in the National Intelligencer a similar tribute. In speaking of Mr. Whitney's Oregon railroad the paper continues: "It is pronounced a *gigantic* and *sub-line* enterprise—as something genius-like and novel—in face of the fact that long anterior to Mr. Whitney's communications the subject of a railway to the Pacific was presented to public consideration by Col. Gadsden, President of the South Carolina Railroad Company. In a report made by him at the Memphis Convention, he noticed the enterprise as one not only practicable, but in the progress of time as certain of execution. In his annual report for 1845 to the stockholders of the South Carolina company he again presented the subject, accompanied with a map, exhibiting the intimate relation between the route of road as suggested by him, and those now completed and in progress through the different States of the Union."

2.—INTERNAL IMPROVEMENTS BY GOVERNMENT SINCE 1805.

The following have been the amounts of appropriations made for this purpose by Congress:

1806,	\$48,400	1823,	\$32,920	1831,	\$926,312	1839,	\$60,500
1810,	60,000	1824,	175,000	1832,	1,225,008	1841,	75,000
1811,	50,000	1825,	176,712	1833,	1,159,452	1842,	100,000
1812,	30,800	1826,	284,253	1834,	1,641,622	1843,	230,000
1815,	100,000	1827,	398,451	1835,	1,352,243	1844,	696,500
1816,	10,000	1828,	1,020,121	1836,	1,837,520	1845,	50,000
1817,	4,000	1829,	608,560	1837,	1,768,219		
1818,	317,990	1830,	672,506	1838,	2,087,044		\$17,199,223

EDITOR'S TABLE.

Among the works handed us during the past month we would notice the following:—

The Castle of Ehrenstein, by James, from J. B. Steel. This, like the other productions of its gifted author, blends all the attractions of romance with the truth of historical narrative. In this age of infinite romance making, we are not apt to underprize anything really excellent.

Newman's Southern Eclectic Series of School Books, in four parts, from D. Baker and Co., Camp street, New Orleans. This edition of school books in gradual progression from the elements of the language, has many claims upon the public, and we are quite sure that the examination of teachers and parents would result in the same conviction. Now that education is so much talked about through our State, let it be seen to that proper school books are not neglected.

Dolbear's Science of Penmanship. Chirographic Atlas.—The Messrs. Dolbear have been known for many years in our community as public instructors in the useful and important art or science of penmanship. Hundreds of students have every year attested their merits. We have ourselves examined the specimens executed by their pupils in different stages of instruction, and been surprised by the results. A more natural method of teaching could not be used. If it were not for being read out of the order of the editorial corps, or of that other profession to which we belong, whose special privileges are to make hieroglyphics, we know of none we would prefer visiting to the Messrs. Dolbear.

Through the kindness of Lieutenant Maury, at Washington, we have received the late reports of the Secretary and of Messrs. Bache and Jenkins, on the *Light House* system, with a great number of charts, which will be very valuable to us. The report on the *Coast Survey*, we regret to mention, was lost in the mail, so that we still find ourselves without it. Lieutenant Maury also sent us sometime ago the valuable astronomical work prepared by him for the use of Government.—One of the noblest monuments of our science yet.

Through Mr. BURKE, of the Patent Office, we have received a portion of the report of that office for the past year. From MR. LA SERE, several documents upon sugar. From HON. ZADOC PRATT, of New York, an agricultural address delivered by him, with the promise of an article upon the "Leather Business." From HON. ABBOT LAWRENCE, of Massachusetts, a number of State documents on agricultural and manufacturing industry, and on the new town of Lawrence, which, like others of New England, has sprung up as it were almost by enchantment. From Col. GADSDEN, the last valuable report of the South Carolina Railroad Company.

Several articles have been received by us on different interesting subjects, which will receive attention as soon as space will admit. Some others are promised, of which we are greatly desirous, viz.: "*Our Policy with the Indians*;" "*The Resources and Statistics of Virginia*;" "*The Industry, &c., of North Carolina*." (We see our friend in Wilmington is making arrangements for a complete article, by his note in the Commercial.) "*The Trade of Charleston*;" "*The Industry of South Carolina*;" "*Land Communication from the Mississippi to California*," &c., &c.

Shall we not be allowed to make our work a repository of all valuable practical information, and as the South and West seem now to be in earnest motion, will not a generous co-operation be afforded us?